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Interdisciplinary Approaches to Curriculum and Pedagogy
Edited by
Teresa Lloro-Bidart
Valerie S. Banschbach
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Editors

Animals in Environmental Education

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Foreword

In 2009, after years of graduate work in Environmental Studies, I was flung into full-time teaching about other animals, hired in a tenure-stream position in the Department of Sociology at Brock University. This was a new and thrilling territory for me, though I had fortunately been mentored by environmental educators who focused on human-animal relations; generally, though, animal-focused pedagogy was still new, its tendrils unfolding in the academy. As I embarked on my career, I was given gentle warnings and whispered cautions that teaching about other animals would be fraught and emotionally difficult for students.

For my part, I had left the gender studies of my undergraduate degree for the greener pastures of environmental studies, where nonhuman animals might be more broadly recognized as subjects. I carried forward a commitment to intersectional analyses, but remained unsure of how such approaches could accommodate animals. As a graduate student in Environmental Studies, my interest in animals produced a kind of chronic feeling of liminality, as nonhuman animals mattered, but typically only as species (not as individuals) and only if they were wild. Animal studies was still relatively nascent in the early 2000s, and how animals belong within environmental thought was paradoxically both contested and invisible.

Through its openness to the nonhuman, though, Environmental Studies and various streams of environmental thought anticipated the Academy's distinct turn toward "the question of the animal" and the rise of posthumanism. There were numerous thinkers, including many ecofeminists and others, who had long refused the human exceptionalism that plagues Western modes of being and knowing, but the particular question(s) of how

and which nonhuman animals might fit into environmental education per se remained largely unanswered. It hung there at the periphery of environmental thought, despite some notable exceptions, as mentioned throughout this collection; animals appeared variably in environmental works as endangered species, as wild kin, as resources, and even as enemies (e.g., as "food animal" polluters). Allied pedagogies continued to multiply on the wing: Humane education, critical animal studies pedagogy, total liberation pedagogy, ecopedagogy, among others. Yet, what of nonhuman animals within environmental education?

This timely volume reflects on the multiple and diverse ways other animals figure in environmental education, and how we might forge pedagogies that are responsive and responsible *to* and *with* them. Throughout this contemplative text, the authors grapple with the meaning and mattering of nonhuman animal life and its marked indivisibility from our own. As Karen Malone notes, drawing on Donna Haraway, "being worldly with" requires challenging dominant humanist environmental education pedagogies. There is much at stake with "thinking through kin on a damaged planet" (Malone).

This text, then, arrives with a sense of urgency, but not panic. There's too much deep reflexivity in these pages to cast this volume as a polemical and prescriptive "how-to" guide to save the world. These authors are committed to wrestling with the harms wrought by the humanist delusion that there ever was a "human" who was separate above the rest of the planet. We are invited to ponder what is working and what we might do differently in service of world-making; how does education change when we recognize nonhuman animals as agential others swirling in, and of, this shared earthly substrate? These authors' long-standing engagements with environmental education add weight to their interventions; their embeddedness provides momentum and tangibility. In other words, while consistently creative and open ended, their ideas are not mere speculation, but informed by years of active work in environmental education.

As such, the authors are not pointing outside themselves, as disembodied authorities, directing others about what ought to be done to remedy any number of ills, such as the suffering of animals on industrial farms, or their persistent erasure from humanist strands of environmental pedagogy. Rather, these chapters are frequently and necessarily personal at times, threaded with stories that take on a dialogical tone. Mercifully, animals do not appear here simply as metaphorical or fictive others to be poked and prodded with some kind of environmental education stick. Against liberal humanist instrumentalism, animals are understood as for themselves; indeed,

their harnessing for human purposes, however potentially benevolent, is raised with concern, as Joshua Russell explores in part in his writing about animal ambassadors in zoos. However, it is not only in these more obvious examples, in which animals are explicitly positioned as teachers within institutions, but also where we might stumble when valorizing animals as posthumanist pedagogues, as yet another re-articulation of anthropocentric projection, forcing animals to play roles for us. It might be, though, that such uneasiness about animals' presence within environmental pedagogy might be productive, calling us to more careful and considered ways of casting animals and their relationality.

The "pedagogy of discomfort," as discussed by Connie Russell (about students' reactions to graphic content), also finds resonance with ongoing tensions between the animal and environmental movements, which appear in this book. For example, the animals and industries typically considered within the purview of animal liberation, such as domesticated animals on factory farms, have often held little purchase within environmental thought generally and environmental education, specifically. Despite the surface incompatibility commonly assumed between animal and environmental concerns, Jan Oakley's chapter petitions us to take seriously speciesism and anthropocentric humanism, as critiqued within animal liberation discourses, to create a more holistic environmental pedagogy that addresses multiple forms of human and nonhuman oppression. Such a project, though, is presented as a work in progress, as unfolding conversations rather than an entrenchment of fixed positions. Indeed, these chapters are united against ideological calcification; instead, tensions might fruitfully stretch us, as Robert Darst and Jane Dawson demonstrate in their exploration of students' responses to meat consumption as an environmental issue, while the authors also admit to having different views on animals as resources.

The dedicated educators represented within these chapters are experimenting with new approaches, refining old ones, and challenging themselves and others to a perpetual openness across disciplines. The commitment to not being certain, of always gathering information, and testing out novel practices welcomes the reader to participate in the conversation.

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Hershey the chocolate lab, all of whom recently passed over the rainbow bridge. This book is dedicated to you.

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CHAPTER 1

Introduction to Animals in Environmental Education: Whither Interdisciplinarity?

Teresa Lloro-Bidart and Valerie S. Banschbach

Introduction

At least since the mid-1990s, environmental education researchers have challenged the anthropocentrism and humanism of the field with their compelling portrayals of animals as subjects in a wide array of educational settings, including classrooms and informal spaces (e.g., Bell & Russell, 1999, 2000; Fawcett, 2000, 2002, 2005; Pedersen, 2004; Russell, 2000, 2005; Russell & Ankenman, 1996; Russell & Bell, 1996; Russell & Hodson, 2002). Published during the early stages of what is now referred to as the "animal turn" in the humanities and social sciences, this scholarship, as well as research in animal cognitive science, anthropology, ethology, geography, history, philosophy, political science, sociology, and other disciplines sparked

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a flurry of interest in developing curricula and pedagogy that address human understandings of and ethical/moral obligations to animals (e.g., DeMello, 2010; Rice & Rud, 2015). Although anthropocentric and humanist paradigms still dominate some environmental education research and practice (Fawcett, 2013; Spannring, 2017), a groundswell of contemporary scholarship, drawing on diverse theoretical perspectives in critical animal studies, critical disability studies, decolonization, fat studies, feminism and ecofeminism, humane education, Indigenous thought, postcolonialism, posthumanism, and queer studies, has begun to transform the field in significant ways (e.g., Affifi, 2011; Andrzejewski, Pedersen, & Wicklund, 2009; Boileau & Russell, 2018; Corman & Vandrovcová, 2014; Fawcett, 2013, 2014; Humes, 2008; Kahn, 2003, 2008, 2011; Kahn & Humes, 2009; Lindgren & Öhman, 2018; Lloro-Bidart, 2015, 2017a, 2017b, 2018a, 2018b, 2018c, 2018d; Lloro-Bidart & Russell, 2017; Lukasik, 2013; Lupinacci & Happel-Parkins, 2016; Malone, 2016; Nxumalo & Pacini-Ketchabaw, 2017; Oakley, 2009, 2013; Oakley et al., 2010; Pacini-Ketchabaw & Nxumalo, 2015; Pacini-Ketchabaw, Taylor, & Blaise, 2016; Pedersen, 2010; Rautio, Hohti, Leinonen, & Tammi, 2017; Rice, 2013; Rowe & Rocha, 2015; Russell & Fawcett, 2013; Russell & Semenko, 2016; Russell, 2017; Spannring, 2017; Spannring & Grušovnik, 2018; Taylor, 2017; Timmerman & Ostertag, 2011).[1] Here, we briefly review the influence of the animal turn on environmental education to situate the current volumes' contribution to the field. To conclude, we briefly summarize the chapters, highlighting the significance of each for curriculum and pedagogy in environmental education.

Animal Subjecthood

Many animal-focused environmental education researchers work to capture animals as *subjects* rather than *objects* in research and practice. Although the field has consistently shed light on significant environmental issues affecting humans and animals alike, prior to the "animal turn" (Oakley et al., 2010), animals problematically figured as passive recipients of human action in most environmental education research. Reflecting wider historical trends in the humanities and social sciences, which Henry Buller notes, "long ago gave up the animal to the natural sciences and their distinctive mechanistic and observational methods," educational researchers tended to focus their

[1] For a recent comprehensive review of animal-focused education in the field, see Spannring (2017).

attention on social (i.e., human) actors, relegating animals and the rest of nature to the realm of "objects or representations within and defined by human social practice" (2015, p. 375; also see Bell & Russell, 2000; Snaza, 2015). More than a decade ago, Connie Russell noted, for example, that even critical environmental education researchers were "mostly silent about anthropocentrism" (2005, p. 434). Drawing on the work of feminist science studies scholar Donna Haraway and other feminists, Russell (2005) moved to contest this anthropocentrism by boldly suggesting that humans not only "co-construct" the world with each other, but also with "nature," including animals. Although Russell (2005) primarily drew on critical animal studies, humane education, and feminist perspectives in order to explore and highlight animal subjecthood in her own research and teaching, environmental education researchers working from various other perspectives have sought to do the same.

Most recently, strands of posthumanism or new materialism (along with feminist renditions of each) have significantly influenced how scholars conceptualize animal agency and subjecthood in research and practice. Although neither posthumanism nor new materialism represents an easily defined or monolithic position, they share an explicit rejection of anthropocentrism and humanism (Cudworth & Hobden, 2015; Lloro-Bidart, 2018b, 2018d; Snaza, 2015) much like the diverse Indigenous cosmologies and philosophies that also influence the field (Battiste, 2002; Pacini-Ketchabaw & Nxumalo, 2015; Tuck, McKenzie, & McCoy, 2014). In their study of the raccoons, children, and educators that share a childcare center on Canada's west coast, for example, Veronica Pacini-Ketchabaw and Fikile Nxumalo draw on a "common world" theoretical and methodological approach informed by posthumanism, decolonization, and Indigenous thought to undo nature/culture dualisms and capture the subjecthood of raccoons:

> The raccoons who live in the childcare complex cross nature/culture and human/nonhuman boundaries in several interrelated ways. First, they *spatially* cross the nature/culture divide. Refusing to keep to themselves in the wild, they make incursions into human territories. They enter the childcare playgrounds, barge into classrooms through open doors and windows, and make dens in the centre's storage sheds…the second divide that the raccoons cross is *ontological*—a gap between the civilized human world and the uncivilized animal world. (2015, pp. 155–156, authors' italics)

As Pacini-Ketchabaw and Nxumalo (2015) vividly illustrate here by depicting raccoons as vibrant, acting beings who co-shape childcare playgrounds and classrooms, contemporary animal-focused education scholarship remains attuned to animal action, agency, and subjectivity, challenging what were once fixed ontological borders between humans and nonhumans. Although scholars approach these questions from differing methodological and theoretical positions, they are united in a commitment to decenter what Nathan Snaza refers to as education's "discerned human" (2015, p. 19).

Politicizing Animals and Educational Contexts

The acknowledgment that educational contexts are inherently political is rooted in the work of critical pedagogues, activists, and scholars like Concha Delgado Gaitan, Cynthia Dillard, Paolo Freire, and Henry Giroux. Yet Aristotle's famous proclamation "That man [sic] is much more a political animal than any kind of bee or any herd animal is clear" (1984/2013, p. 4) still pervades much educational research. That is, while many humans are conceptualized as political actors in politicized contexts, animals largely remain on the margins (Bell & Russell, 1999; Russell & Fawcett, 2013), with their concerns and interests sidelined as superfluous to those of human beings. Animal-focused educators, however, have begun to mount a significant challenge to such decidedly anthropocentric and humanist perspectives, explicitly recognizing that the macro and micro political contexts of education affect animals (and humans) in profound ways. Two decades ago, for example, Russell and Anne Bell drew on ecofeminism to note, "The contexts of our endeavours—not only ecological, but also cultural, political, and, of course, pedagogical, must be taken into account…to work toward building healthy relationships with [our] local communities—human and nonhuman" (1996, p. 9). Soon after, critical animal studies scholars like Julie Andrzejewski (2003), Richard Kahn (2003), and Helena Pedersen (2004) wove insights from critical pedagogy, ecofeminism, and humane education to argue broadly for a politicization of education that acknowledged not only animal subjecthood, but also the intersecting concerns of animal, environmental, and social movements. Although Black feminists (Collins, 1990; Crenshaw, 1989, 1991) and ecofeminists (Adams, 1990/2015; Donovan, 1990) had each made similar arguments about "intersecting" concerns decades prior, this scholarship merged these interests specifically in the field of education to shed light on the complex ways

in which hegemonic social structures marginalize and oppress some groups of humans, as well as animals, other living entities, and the environment.

More recently, researchers have drawn on this body of work, as well as insights from the environmental humanities and social sciences, to conceptually and empirically explore how the varied politicized contexts in which education occurs shape human-animal relationships indelibly influenced by, for example, anthropocentrism, humanism, neoliberal capitalism, industrialized agriculture, and settler colonialism (Corman, 2012, 2017; Corman & Vandrovcová, 2014; Lloro-Bidart, 2014, 2017a, 2017b, 2018d; Nxumalo & Pacini-Ketchabaw, 2017; Oakley, 2009; Pacini-Ketchabaw & Nxumalo, 2015; Rautio et al., 2017; Rowe & Rocha, 2015; Russell & Semenko, 2016). While working from varied paradigms and positionalities, these scholars are united in demonstrating how animals, too, lead political lives. As animal rights philosophers have compellingly demonstrated, animal lives are political insofar as they are routinely subjected to *our* (as in diverse human beings') political structures, which we have lopsidedly co-constructed with them in many ways (Calarco, 2008; Deckha, 2012; Haraway, 2008; Russell, 2005), but also because they are—or should be—thriving members of mixed communities (Donaldson & Kymlicka, 2011; Midgley, 1983). Based on extensive research in ethology and animal cognitive science, for example, which has evinced the ways in which other animals lead phenomenologically rich lives and experience joy, love, pain, and sorrow, it is crucial to continue to explore human-animal relationships bearing in mind that no educational context is apolitical. Such an acknowledgment does not necessitate that we understand animals as beings fundamentally human-like in order to grant them rights or membership, but rather that we question and unravel the problematic Enlightenment human (White, Western, cis-gender, male) against which all other beings (including many humans) have been constructed as inferior (Bell & Russell, 2000; Jackson, 2013; Ko & Ko, 2017; Snaza, 2015).

Whither Interdisciplinarity in Animal-Focused Education? Reimagining Curriculum and Pedagogy

In the preceding sections of this Introduction, we sketched a very brief overview of the history of animal-focused education research, emphasizing shifting understandings of animal agency, subjecthood, and subjectivity, as

well as the political contexts in which animal-focused education occurs. Since this volume focuses explicitly on interdisciplinary approaches to curriculum and pedagogy, our aim is to situate this edited collection broadly within the field of environmental education, and more specifically within animal-focused education, while offering new insights gleaned from embracing interdisciplinarity. All of the chapters thus imbricate their own knowledges and perspectives with existing research to explore how interdisciplinary approaches might uniquely frame curriculum and pedagogy so that learners in diverse educational settings can develop compassion, empathy, and skills to create a more just world for animals, other beings, and humans alike. We chose interdisciplinarity as a theme not only because we ourselves hail from different disciplinary backgrounds (Teresa, environmental education; Valerie, animal behavior), but also because we posit that interdisciplinarity offers animal-focused educators approaches that discipline-based curricula and pedagogy lack.

Perhaps fittingly, this book was born out of a session Valerie organized at the Association for Environmental Studies and Sciences annual meeting (2016), which is a professional association dedicated to encouraging, "interdisciplinary understanding of environmental science, policy, management, ethics, history, and all of the other vital contributions of traditional disciplines in order to better understand the natural world and humans' relations with it." In that session, where participants and audience members engaged in lively dialogues about animal-focused education, Teresa and Valerie realized that cross-disciplinary collaboration between a social scientist and a natural scientist could be fruitful for animal-focused scholars and educators, in much the same way that Marianne Krasny and Justin Dillon's (2013) *Trading Zones in Environmental Education* did for the field more generally (See, e.g., Fawcett & Dickinson, 2013 within that volume). This book, therefore, asks how such interdisciplinary perspectives can be leveraged to produce curricula and pedagogy that give voice to animals, acknowledge that we can never fully understand animals' subjective lives or experiences (Corman & Vandrovcová, 2014), and allow students to explore the complex and sometimes exploitative ways in which our lives are intimately entangled with those of other animals at the local, regional, national, and global levels. While some chapters explicitly describe cross-disciplinary collaborations to develop curriculum, pedagogical strategies, and even new courses, other chapters draw on multiple disciplinary perspectives to illuminate practice.

Intersectional Perspectives

Fundamentally questioning the problematic Enlightenment human requires an intersectional understanding that brings matters of animal justice, environmental justice, and social justice together in a unified understanding. In Chap. 2, Jan Oakley shows how an animal liberation perspective, as theory, practice, and lived reality, can inform environmental education, proposing that an intersectional approach to social justice can advance work in humane education. The chapter demonstrates that an animal liberation perspective provides a means by which to resist humanism and speciesism, as well as to embrace an understanding of the need for humane food choices. Oakley posits, "Our work might begin with challenging speciesism and attempting to dismantle relations of hierarchy, replacing them with relations of compassion and interconnection." Like Oakley, in Chap. 3 Connie Russell explores how intersectional frameworks can be fruitful for animal-focused environmental education, with a special focus on online learning, the hidden curriculum, and the affective dimensions of animal-focused education. Russell's chapter is not only rich with descriptions of her own lifelong entanglements with animals, but also delves into instructive and vibrant examples of intersectional pedagogies at work in an online learning environment, a pedagogical space that presents unique challenges. Emphasizing what she calls "polyvocality" in course materials, Russell includes a diverse and interdisciplinary set of course materials, including songs and cartoons, to engage students in a variety of intersecting animal and social concerns, including "the speciesism, sexism, and sizeism at play in our relationships with animals like cows and pigs." To round out this section, in Chap. 4 Teresa Lloro-Bidart merges intersectional perspectives in critical animal studies, critical food studies, and critical food systems education to explore an interdisciplinary pedagogy of interspecies food justice. Drawing on post-course ethnographic interviews with students enrolled in her Critical Food Studies course, as well as student coursework, Lloro-Bidart demonstrates how students can come to understand systemic oppressions in food systems as linked, which is critical given that animal, environmental, and social concerns are often problematically siloed. As she notes, "This approach not only has the potential to overcome some of the barriers of the meat paradox, but also might foster more sophisticated and nuanced understandings of food systems, including how they are racialized, classist, speciesist, as well as cause significant environmental damage."

Posthumanism

Posthumanism provides a theoretical lens through which we may take a more critical perspective on animal-human relationships, a standpoint from which to challenge traditional ideas about the separation of humans and animals. In Chap. 5, Reingard Spannring examines relationships between humans and horses with an eye toward foregrounding the needs of the horse in bringing about "mutual becoming" (Haraway, 2008) as environmental education. The work places results from multispecies ethnography and zooanthropology of the horse within a framework of posthumanist discourse. Spannring concludes that "letting go of expectations, predetermined procedures and results, preserving (human and nonhuman) subjectivity and ownership of learning processes, and allowing time for such a rewilded mutual becoming might be more important than any theory or method." Karen Malone, in Chap. 6, takes the reader on a journey to Bolivia and Australia, where she practices multispecies ethnography and ecological sensing of bodies to challenge human exceptionalism and human-nonhuman dualisms. Malone demonstrates that urban environments are teeming with vibrant natures that include "dogs, cats (domesticated but also wild), rats, mice, foxes, possums, bats, raccoons, squirrels, and rabbits, along with a host of native and exotic birds," all of which "provide opportunities for mutual reciprocity, care, and protection." Through a theoretical foray into dog-possum-human bodies, Malone proposes that we consider what "'living well together' with a host of species and histories" might look like, as well as posits that we reframe pedagogies so that humans are not at the center heroically saving the earth, but rather are embedded in their everyday relations with each other and other species. Rounding out this section, in Chap. 7 Joshua Russell asks, "What does it mean to suggest that animals are educators?" In so doing, he not only explores the existing research literature, but also considers his own personal and research experiences with captive animals and animal dissection, as well his extensive research into children's relationship with animals, especially their experiences with animal death. The chapter culminates with Russell developing a "spectrum of other-than-human animals' pedagogical participation," which provides a useful heuristic for thinking about how animals are represented and engaged in education. Russell notes, "Such a heuristic could provide first steps toward illuminating not only nonhuman animals' active participation or subjective contribution within educational projects, but also perhaps the ethical and epistemic value of the relationships being described or employed."

Arts-Based Approaches

Arts-based education, including narrative fiction, folklore, Indigenous ontologies, and phenomenological inquiry into storytelling compel us to connect and empathize with animals and bring us new perspectives on animal-human relations. Jason Lukasik and his co-author, Sam the Bear, in Chap. 8, prompt us to consider animal captivity in a work of narrative fiction exploring the underlying, unwritten curriculum of zoos by giving animals a fictional voice. Lukasik also draws upon teaching he has done in zoos to explore the ramifications and broader meaning of holding animals in captivity. He proposes that the "crossing of epistemological borders" by telling stories of the wild "gives us permission to consider other ways of knowing, and compels us to think beyond our own immediate worldview." Moving from Lukasik's fictional animal voices to stories that humans create about fictional animals, D.B. Poli and Lisa Stoneman, in Chap. 9, describe how they engage students in exploration of the origins of a mythical animal, the dragon. Poli and Stoneman describe their Dragon Project, a transdisciplinary research effort creating new understandings of stories about environment, animals, and ourselves. They begin with the novel observation that dragon folklore is most often found in cultures of regions with coal seams featuring Carboniferous fossil plants that have a dragon-like appearance. The chapter describes their work, creating a framework allowing students and faculty from diverse disciplines to transgress disciplinary boundaries to research the dragon, rightly conjoining natural and human history. Poli and Stoneman's work reveals "ideas born of the dragon, a think-tank that this perspective engenders—a maker-space for ideas that are never wrong, merely unfinished." Last in this section, in Chap. 10, Leesa Fawcett and Morgan Johnson look at storytelling of non-Western cultures, taking on "vexatious pedagogical questions" of multispecies relations by exploring Indigenous and phenomenological ontologies using arts-based research methods. Their work draws connections across kin-centric ontologies, depicting how these stories "detail human obligations to other animals" and ground us in realistic experiences of the land. Fawcett and Johnson provide an arts-based methodology to explore our relations with animals in a way that may "help us collectively imagine alternative learning environments [where] we can begin to forge new/old relations between humans, other animals, land, water, and all the other entities with which we coexist."

Interdisciplinary Conversations in Formal and Non-formal Education

This final section of the book presents work that explicitly transcends academic disciplinary boundaries in classroom teaching about animals. Moving from classroom to career, the final chapter analyzes the factors that influence careers of animal-themed educators in non-formal settings. In Chap. 11, Valerie S. Banschbach and Marwood Larson-Harris describe the "Thinking Animals" course they developed for the general education and ethical reasoning requirement at their college. The authors are a natural scientist and a scholar of Asian and Native American religious traditions. In the Thinking Animals course, they bring knowledge derived from scientific studies of cognitive ethology and animal behavior—results demonstrating high-level reasoning, problem-solving, moral and emotional capacities of animals—to bear on thinking about animal-human relations and the moral status of animals. Banschbach and Larson-Harris present data from a survey of students who took the course. The survey results show the positive response of students to this classroom-merging of divergent ways of knowing and demonstrate the confidence students have in their knowledge of the emotional capacities of animals. Chapter 12, by Robert Darst and Jane Dawson, presents interdisciplinary pedagogical efforts at their university and college to engage students in considering the "Meat on the Table." Darst and Dawson discuss the difficulties associated with engaging students in discussing solutions to the strongly negative impacts of animal agriculture on animal and environmental well-being. They characterize the response of students and others to being confronted with truths about meat as part denial and part stigmatization of those who challenge the "rightness" of meat-based diets, likening the response to that of climate change deniers. The interdisciplinary pedagogical strategies described by Darst and Dawson reveal ways to productively engage students in a conversation about animals and meat around multiple values that "emphasize local impacts, co-benefits, and shared community values." The final chapter of this volume, Chap. 13, by Susan Caplow and Jennifer Thomsen, is an empirical study of significant life experiences of animal-focused educators in non-formal settings. This chapter represents an apt final piece in this volume, as it reveals the ways significant life experiences with animals in zoos and aquariums, as pets, and in other settings, shaped the thinking of animal-themed educators about their career pathways and either reinforced their desire to work with animals or pushed them else-

where. The study expresses the possible career-determining forces associated with the tensions described throughout this book around our relations with animals. Caplow and Thomsen conclude from their data that while "animal-themed educators share some unifying experiences with more general environmentalist populations…animal-related experiences may indeed represent a somewhat unique pathway to these positions" compared to those who take on other kinds of environmentally focused careers. This conclusion reinforces the need to explore the role of interdisciplinary approaches that foreground animals in environmental education.

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PART I

Intersectional Perspectives

CHAPTER 2

What Can an Animal Liberation Perspective Contribute to Environmental Education?

Jan Oakley

What can an animal liberation perspective contribute to environmental education? This is a question I pondered as a graduate student who embraced a vegan politic, while entering an academic program with a strong environmental education focus. Although I could identify convergences between the discourses of environmental education and animal liberation, I struggled to understand if, or how, the latter had a place in the field. Having reflected on this question over the past years, while coming to better understand the intersectional nature of environmental, animal, and social justice issues (or rather, how environmental and animal issues *are* social justice issues), I have gained awareness of some of the ways that animal liberation, as a standpoint, theoretical body, and lived reality can productively contribute to environmental education.[1] My goal in writing

[1] I use the term "animal" to refer to those beings who fall outside of the *Homo sapiens* category. I employ this language for ease of reading—given that I refer to "animals" so

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this chapter is to discuss some of these contributions, and explore how a more rigorous interrogation of the "animal question" can enhance environmental education in theory and in practice.

In writing about animal liberation, I am referring to a vision of the abolition of other-than-human animals' exploitation and oppression. I contextualize this struggle within an intersectional framework of socioecological justice that encompasses human, animal, and ecological communities together. Kahn and Humes (2009) label this approach to teaching a "total liberation pedagogy"—that is, an attempt to "work *intersectionally across and in opposition to all oppressions* (including those of nonhuman animals) and *for ecological sustainability*" (pp. 182–183, italics in original). While keeping this holistic vision of a liberatory pedagogy in mind, in this chapter, I specifically discuss the relevance of dismantling *speciesism*—understood as discrimination against or domination over other animals, based on the assumption that humans are the superior species—as a tenet that an animal liberation perspective can contribute to environmental education praxis.

Animal liberation, as I am defining it here, is an ethic that brings forth practices in daily life. For many people in the Western world, a commitment to animal liberation means widening their circle of compassion to include other animals and making individual efforts to transform the dominant paradigm that positions those animals as inferior "others," without desires or purposes of their own. In neoliberal capitalist economies where our spending patterns might be understood as our "votes" for particular products or services, a dedication to animal liberation also involves being conscious to avoid supporting the industries that enact egregious forms of animal abuse and exploitation, including (although not limited to) factory farming, vivisectionist scientific practices, the fur fashion industry, and the use of animals for "entertainment" (e.g., in circuses and zoos). For many, this involves pursuing a plant-based diet and avoiding the purchase of products that have been tested on animals or for which animals have been killed for their flesh or body parts. In short, it means including animals in an enacted, intersectionalist politic of social justice, one that is ideally, and importantly, entwined with other anti-oppressive social justice movements.

frequently, I find the use of the alternative "nonhuman animal" cumbersome and not without its own drawbacks, as "nonhuman" continues to privilege humanity by defining other animals in a negative sense. I recognize, however, that in reserving the term "animal" for all beings outside of humans, I am eliding the fact that humans are animals, too. For further reflections on the complications of language and speaking about "animals," see Dunayer (2001).

The Rise of the Animal Question

Caring about animals and paying ethical attention to them is rooted in histories inside and outside the academy. Within academic contexts there has been a broad turn, in the past two decades, toward the "animal question," defined by Cavalieri (2001) as the moment that has arisen as a result of "more than 20 centuries of philosophical tradition aiming at excluding from the ethical domain members of species other than our own" (p. 3). While traditionally, the study of animals was relegated to the natural sciences, in recent years, a groundswell of thinking has emerged from fields in the social sciences and humanities including philosophy, ecofeminism, religious studies, sociology, literary studies, media studies, historical accounts, and others. This turn has also seen the birth of newer disciplines that are unpacking human-animal relations and revis(it)ing our understandings of other species, including Critical Animal Studies (e.g., Best, Nocella, Kahn, Gigliotti, & Kemmerer, 2007; Corman & Vandrovcová, 2014; Sorenson, 2014) and posthumanism (e.g., Castricano, 2008; Pedersen, 2010; Wolfe, 2010).

Given this flourishing attention, it is not surprising that environmental educators, too, have been grappling with the animal question (see, e.g., Fawcett, 2014; Kahn, 2008; Kahn & Humes, 2009; Kuhl, 2011; Lloro-Bidart, 2015; Oakley et al., 2010; Pedersen, 2011; Russell, 2005; Spannring, 2017; Timmerman & Ostertag, 2011; Warkentin, 2009; Watson, 2011).[2] This growing body of literature illustrates an ongoing commitment in environmental education to overturn humanistic paradigms and replace them with ecological, interspecies ones.

Research within and outside the environmental education field has explored what has been incorrectly understood about animals in the Western tradition. Historically, conceptualizations of other species have relied on assumptions of animals as lacking something the human community possesses, be that language, emotions, self-awareness, rational thought, tool usage, or culture, for example (Steiner, 2005). The discourse of the "animal-as-lacking" has served to support animals' reduction to a category of beings to whom people owe little or no ethical consideration, while simultaneously propping the human up on an anthropocentric pedestal. As Best (2009) writes, the Western world has traditionally "fracture[d] the evolu-

[2] See also the 2011 *Canadian Journal of Environmental Education* issue, themed "Animality and Environmental Education," and the 2011 *Environmental Education Research* journal, themed "The Media, Animal Conservation and Environmental Education."

tionary continuity of human/nonhuman existence by reducing animals to (irrational, unthinking) 'Others' who stand apart from (rational, thinking) human Subjects" (p. 16). This dichotomous division contributed to the damaging Western myth of human superiority, and the flawed conceptualization of animals as beings who do not warrant our ethical attention.

An animal liberation perspective interrupts anthropocentric thinking by proposing a different starting point, one that takes seriously the notion that animals have interests and that a desire for freedom from domination must be among them (cf. Hribel, 2010). In collapsing the constructed divide between humans and other species, a liberation perspective acknowledges explicitly that we are not the only ones who think, feel, and care what happens to us. It prompts a reconsideration of what has passed in the Western tradition as knowledge about animals, starting from different ontological positions. Through a vision for a world in which animals are recognized as agents and the cultural, political, economic, legal, and historical projects of their oppression are eliminated, it encourages transformative thought and action.

Contributions to Environmental Education Praxis

The vision of extending social justice beyond the human boundary is already familiar to environmental educators, who recognize the necessity of educating for improved relations with what Abram (1996) termed the "more-than-human world," including plants and animals. In this way, the animal liberation ideology already shares an alliance with environmental education theory and practice, as individuals in both movements work toward ameliorated human-nature partnerships. There are other specific contributions an animal liberation perspective can highlight in environmental education praxis, however. While this is certainly not an exhaustive list, three contributions I address here include an approach to socioecological justice that accounts for speciesism, a framework for challenging humanism, and support for humane food choices that consider the experiences of other species.

Confronting Speciesism

> Speciesism is a form of oppression that parallels and reinforces other forms of oppression. These multiple systems—racism, classism, sexism, speciesism—are not merely linked, mutually reinforcing systems of oppression: *they are different faces of the same system.* (Gaard, 2001a, p. 20, italics added)

The mantra, "an injustice against one is an injustice against all," speaks to the interconnected nature of oppression and the need for coalition building among social justice movements. After all, environmental injustices rarely stand on their own: consider, for example, how the communities of Indigenous peoples and people of color are often targeted for toxic waste disposal sites (demonstrating how racism and environmental contamination intersect), or how, on a global scale, women and children suffer most from the adverse health effects of environmental degradation (demonstrating the interplay of environmental and sexist oppressions) (Gaard, 2001b; LaDuke, 2002; Warren, 1999). Other research has compellingly shown why our work toward addressing the ecological crisis implicates other social justice issues, including oppressions relating to gender (Gough, 2013), class and ability (Newbery, 2003), colonialism (Cole & O'Riley, 2010; Root, 2010), body size (Russell & Semenko, 2016), and heterosexism (Gough et al., 2003; Russell, Sarick, & Kennelly, 2002)—highlighting how seemingly disparate forms of oppression are, in fact, bound up with one another. These intersections reveal that environmental justice cannot be realized in isolation of other movements for liberation; "single-issue" politics are short-sighted.

Acknowledging this reality makes it clear that falling silent on the animal question means leaving some forms of domination unchallenged. This silence equates to an inconsistency in working to dismantle the interlocking forms of oppression: what Gaard (2001a) calls the "different faces of the same system" (p. 20). Certainly, this is not to suggest all oppressions are the same, but there remains a need to recognize that a shared root of all forms of oppression lies in hierarchical modes of thinking that award some groups elite power while other groups are marginalized and oppressed. Ecofeminists have demonstrated this point well, with some acknowledging explicitly that animals—particularly those incarcerated in industrial, vivisectionist, and other exploitative confinement systems—must be counted among the marginalized and oppressed (e.g., Adams, 1995, 1999; Gaard, 2001a; Kheel, 2004). Speciesism needs to be recognized as a product of hierarchical thinking and a form of oppression that, like others, demands critical attention.

In acknowledging speciesism, environmental educators can confront interconnections between the domination of animals and domination in human and ecological communities. Some examples of these interlocking oppressions include the rampant mistreatment of animals and workers alike in slaughterhouses (Schlosser, 2005), the linkages between animal abuse

and women battering in the domestic sphere (Adams, 1999), and the devastating toll of factory farming on the bodies of animals and their surrounding environments (D'Silva & Webster, 2010; Garnett, 2009). Racist and speciesist discourses have also been shown to be intertwined, for example, in the pervasive portrayals of Indigenous peoples as "wild," "bestial," or "savage" (Rider, n.d.), or in the disturbing linkages between the enslavement of Black people in the Antebellum South in the United States and the enslavement of animals in vivisectionist and factory farm contexts (Spiegel, 1996). Examples such as these underline why compassion for people and compassion for animals cannot be separated into mutually exclusive categories. Instead, an incorporation of speciesism into socioecological justice acknowledges the reality that all movements for liberation need to work together to dismantle the pervasive, interlinked systems of oppression, what Collins (1990) called the "matrix of domination."

It is worth noting that animal liberationists are already often allies in the environmentalist movement, making choices in their daily lives that extend to the well-being of the environment and other species (Sorenson, 2010). Some ecological educators, too, embrace an intersectionalist politic by incorporating a stance against speciesism in their critical teachings (e.g., Kahn & Humes, 2009). Adopting an integrated approach enables educators and allies to expand their advocacy work to a paradigm that is inclusive of human, animal, and ecological worlds together.

Challenging Anthropocentric Humanism

> Like a fish in water, the environmental education field rarely discusses anthropocentrism explicitly—it is the taken-for-granted water in which we all swim. (Fawcett, 2014, p. 409)

The human-centered belief that people are superior to nature is a central part of the problem of environmental degradation and the oppression of nonhuman life (Bell & Russell, 2000; Evernden, 1999). While anthropocentrism may rarely be acknowledged explicitly, the underlying framework of perceived human superiority has created a distancing from the natural world and fostered a resourcist attitude toward it, contributing to its devaluing and degradation. The deep roots of this problem can be brought into focus by considering Western histories of human-animal relations.

Historically, the favored philosophical traditions inherited from the Enlightenment positioned humans as "above" other animals—different

from and superior to them—and owing them little or no moral consideration. For example, several Western philosophers addressed the question of what makes humans distinct from animals and came to anthropocentric conclusions: Aristotle argued that animals exist to serve man [sic], Kant wrote that animals are a means to an end and that end is man [sic], Augustine argued that animals are not self-aware and are therefore inferior to self-aware humans, and Aquinas forwarded that it is pointless to extend charity to animals because they are not rational creatures, and the order of nature is for "irrational" beings to serve "rational" ones. Perhaps most famously, Descartes argued that animals lacked souls and were therefore *mechanisms*, as opposed to *beings*, and as such he believed that having an ethical stance toward them was unwarranted (Steiner, 2005). These ideas contributed to an intellectual tradition that assumed human interests mattered the most—or were the only interests that mattered at all.

Being firmly rooted in a humanist tradition makes it difficult to question philosophical models where the criteria for inclusion in the moral community is predicated on notions of rationality, autonomy, agency, and the "speaking subject" (Pedersen, 2004; Russell, 2005; Wolfe, 2010). Yet herein lies a key tenet of what an animal liberation perspective calls for: an overhaul of traditional ways of thinking about who is a "subject" in this world and what criteria have been used to come to this conclusion. Traditional models of Western liberal thought will never do justice to the moral standing of animals because animals are de facto excluded from them, and this highlights the need for a reconceptualized understanding of subjectivity that is not based on the abilities that (some) humans possess, such as speech. Rather, an inclusive model of subjectivity might be based on compassion for all living beings and the recognition that "subjects-of-a-life" (Regan, 2004) come in many shapes, forms, and ways of being in the world.

An animal liberation perspective contributes to a clearer understanding of anthropocentrism by blurring the boundaries that have been used to separate humans from other species. For example, while language has traditionally been understood as the exclusive domain of humans and a marker of subjectivity, if we move outside of a human framework, we can see that many animals communicate using a language of sorts, although theirs may be based on scent or vibration or songs rather than words. By the same token, all animals have their own versions of rationality and intelligence; as Bekoff (2002) writes: "[I]t is not very useful to ask if cats are smarter than dogs or chimpanzees are smarter than wolves, for each

individual has to do what she or he needs to do in her or his own world" (p. xx). As scientists and ethologists continue to overturn what were once thought of as exclusively human traits—discovering, for example, an awareness of mortality among elephants (McComb, Baker, & Moss, 2006), tool usage among species of ants (Fellers & Fellers, 1976), the use of American Sign Language among gorillas (Haraway, 1989), personality traits in salamander larvae (Sih, Kats, & Maurer, 2003), and culture among humpback whales who even express regional "dialects" within their pods (Whitehead, 2004)—the once clear-cut differences presumed to exist between humans and other animals have become increasingly blurred, leaving us with the realization that anthropocentric notions of subjectivity are rooted, quite simply, in human chauvinism.

An animal liberation perspective calls this chauvinism into question. It demands that we pay ethical attention to other species and our relationships to them, critically considering our treatment of those who are suffering on factory farms, tucked away from our view in laboratories as objects for scientific scrutiny, performing for us in zoos or encaged in aquaria, or extirpated from our environments because of a loss of habitat we have authorized to serve human purposes. In the process, poignant questions about anthropocentrism arise: How do we justify it? What are its outcomes for human *and* animal subjects in this world? What alternative discourses and guiding ethics are available to us? These are important questions for environmental educators who want to challenge the Western disconnect from the natural world.

The Choices on Our Plates

> Veganism is not just a personal choice but a political one. It is the … outcome of the recognition that animals are not property but individual beings who have their own interests, which should be considered. It is an ethical commitment, a symbolic gesture and a statement of principle, the rejection of hierarchy, domination and oppression, an acknowledgement of the inherent value of other beings. (Sorenson, 2010, p. 174)

Following a plant-based diet for ethical reasons can be understood as an enactment of the recognition that animals are subjects. Given Adams' (1995) assertion that the most common way Westerners interact with other animals is by eating them, a vegan diet can represent a political act of challenging hegemonic forms of human-animal relations. Further,

while what is on one's plate is a complex matter, influenced by factors of culture, bioregion, socio-economic class, individual preferences, and identity (Stapleton, 2015), it is also very much an environmental one. This becomes evident in considering the incredible environmental toll enacted by standardized meat production.

As the industrial factory farming model has expanded to a worldwide standard, the environmental results have been devastating. The outcomes of this model include: the destruction of the Earth's forests for crop growth and cattle ranching, a deeply inefficient cycle of growing cereal and soybean crops primarily to feed livestock (in a time when hunger is facing upward of a billion people who could use the lands and crops to feed themselves), and the alarming enormity of the water footprint associated with meat eating in comparison to a plant-based diet (Cassuto, 2010; Clark & Tilman, 2017; D'Silva & Webster, 2010; Garnett, 2009). The fact that livestock production accounts for more greenhouse gas emissions than transportation shows why veganism can be understood as an environmental act and why, as D'Silva and Webster (2010) write, "most of us [in the Western world] could do more for the climate by cutting our meat and dairy consumption rather than our car and plane journeys" (p. 2). Shifting dietary patterns away from meat and dairy-centric diets is key to environmental sustainability (Clark & Tilman, 2017; D'Silva & Webster, 2010; Stănescu, 2010; Weber & Matthews, 2008).

The environmental costs of meat production are alarming and demand a response, but cannot be considered in isolation from the tremendous *ethical* costs and enormity of animal suffering brought on with intensive confinement models. Industrial agriculture models deny animals their most basic desires, including the desire to move around, to form social bonds, to procure their own food, to create their own homes, to live outdoors, and to raise their offspring. With pigs raised in stalls barely larger than their own bodies, chickens in cages with less than a square foot of floor space per bird, and dairy cows spending most of their lives tethered at the neck, it is no surprise that factory-farmed animals suffer physical pain and extreme psychological distress. Unable to exercise and bred to be abnormally large, many become crippled and obese during their short lives. In addition, the high levels of ammonia the animals breathe from the urine and feces that collects below them commonly results in eye infections, breathing problems, and illnesses such as pneumonia. Psychological problems are evident as well; in response to the deprivation that characterizes their lives, many intensively farmed animals exhibit stereotyped behaviors such as thrashing

back and forth, ongoing vocalizations, self-mutilation, and "sham chewing" (chewing the air) (Montgomery, 2000; Regan, 2004; Sorenson, 2010). Animal liberation-themed videos make the disturbing realities of factory farming evident to anyone who cares to search for them online.

In writing about diets, it is not my intention to be prescriptive. Rather, my goal is to continue the dialogue about the high cost of meat eating to humans, animals, and the health of the planet. As carnivorous appetites increase globally, one of the most important messages coming from an environmental perspective concerns the need for people—particularly those in the most developed countries—to eat less meat. Present patterns of meat consumption are unsustainable regardless of the source: small-scale farms could not expand laterally to accommodate current and forecasted patterns of meat eating; there is simply not enough land for this to be possible (Stănescu, 2010). Sadly, the factory farm model is the "answer" to the growing global desire for meat, but given the extreme costs of this "solution," an animal liberation perspective offers a valuable reminder of the positive ethical, environmental, and health outcomes of opting for plant-based fare.

Environmental Education for a More Humane Future

How might environmental educators incorporate an anti-speciesist perspective in their practices? Humane education deserves mention as an advocacy pedagogy grounded in an intersectionalist vision of social justice that foregrounds human-animal relations (e.g., Fawcett, 2014; Humes, 2008; Pedersen, 2004; Selby, 1995, 2000; Unti & DeRosa, 2003; Weil, 2004). As a field that investigates "how we might live with compassion and respect from everyone … for all people … for all animals … and for the Earth itself" (Weil, 2004, p. 4), humane education seeks to promote understanding of various forms of social (in)justice, from human oppression to animal exploitation to environmental degradation, to approaches to minimizing all three. As such, it is an inherently intersectionalist pedagogy that ensures animals do not end up as a theoretical blind spot, as they too often do in critical theory approaches concerned primarily with human rights and interests.

Humane education offers environmental educators an entry point for exploring issues of animal advocacy and their interconnections to environ-

mental and social justice issues. As Fawcett (2014) notes, humane educators address concerns including "factory farming, international trade in animals, fur farming, and trapping … [which] all harm individuals and have significant holistic environmental impacts" (p. 410). Humane education theory and practices enable educators to holistically consider environmental and animal-related concerns in tandem. For example, one suggested humane activity for younger students outlined by Weil (2004), entitled "Cast Your Vote," demonstrates how consumers shape the political economy as our spent dollars are, effectively, our votes in favor of particular practices and products. Similarly, another activity, entitled "True Cost," sees students analyzing a variety of products (e.g., a can of Coke, a wool sweater, a container of ammonia) and researching the effects of the products on themselves, other people, animals, and the environment. A third activity, "Alien in the Ethical Universe," asks educators to pretend to be aliens in a fact-finding mission about Earth and its inhabitants, and to ask students thought-provoking questions about animal species such as, "How are you supposed to treat _____? Is it ever okay to harm _____? Why or why not?" Through students' responses to the questions, inconsistencies in our treatment of other animals are brought to light. Other humane education topics that can be addressed involve exploring the costs, and educational responses, to meat eating (e.g., Rice, 2013; Rowe, 2011) and animal dissection (Oakley, 2009; Selby, 1995). By peeling back the layers of speciesism and exploitation structured into cultural, political, and consumerist practices and ideologies, humane education activities can contribute to informed decision-making as individuals holistically consider a range of social justice issues and concerns. It is not a panacea (Humes, 2008), nor is it the only field to effectively address these issues, but it does provide an opening. With the goal of fostering critical and creative thinking, reverence and compassion, and a sense of responsibility and action to create a more humane world (Selby, 1995; Weil, 2004), humane education can assist environmental educators in exploring animal liberation concepts as part of a total liberation pedagogy (Kahn & Humes, 2009).

Whether educators draw on humane education or other fields to bring animal-related issues to the fore, I believe the most important point is for environmental educators to broach the topic *to begin with.* We share the planet with billions of other animals, and as such, it behooves us to consider our relationships with them critically, materially, metaphorically, spiritually, and ethically. Our work might begin with challenging speciesism and attempting to dismantle relations of hierarchy, replacing them with relations

of compassion and interconnection that emerge from the recognition we are not "above" other animals but are, of course, fellow beings alongside them. As Beston (1928) eloquently wrote of our animal neighbors: "They are not brethren, they are not underlings; they are *other nations*, caught with ourselves in the net of life and time, fellow prisoners of the splendour and the travail of the Earth" (p. 20). As environmental educators, that splendor, and our accompanying travails, can only be more fully realized when we incorporate other animals into our thinking, acting, teaching, and research efforts.

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CHAPTER 3

An Intersectional Approach to Teaching and Learning About Humans and Other Animals in Educational Contexts

Constance Russell

Introduction

Other animals have featured in most of the post-secondary courses I have taught over the past 20 years. Whether the focus has been environmental education, outdoor education, or social justice education, I have long taken an intersectional pedagogical approach that foregrounds the entanglements of animal, environmental, and social justice issues. My courses critically examine underlying assumptions of different approaches to education, including diverse and contested positions on human/animal and human/nature relationships and the ways in which anthropocentrism and speciesism intersect with racism, classism, sexism, heterosexism, ableism, and sizeism. In the *Animals in Education* course that I began teaching in the fall of 2016, however, other animals finally have taken center stage and it is this course that will be the focus of my chapter.

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The course is a 12-week asynchronous online elective course designed for Master of Education (MEd)[1] students with diverse disciplinary backgrounds. Most are certified teachers working in elementary and secondary schools, colleges, or informal learning sites across Canada. Drawing from interdisciplinary writing in critical animal studies, ecofeminism, environmental philosophy, intersectionality studies, and posthumanism as well as environmental education, humane education, Indigenous education, interspecies education, and common world pedagogies, we ponder the ways in which animals are often marginalized or erased in contemporary Western culture generally and in education specifically. To do so, we examine a variety of ways that other animals feature in education, whether explicitly or as part of the hidden or null curriculum, including learning with and from companion animals, common and familiar animals, food animals, wild and captive animals, animals used in school dissection, animals living in or visiting classrooms, as well as the ways in which animals are represented in children's literature, media, and advocacy campaigns. In this chapter, I will begin by first sharing my personal and theoretical inspirations before turning to a brief description of the course and then sharing insights on key aspects, including the challenges and possibilities of online learning, the hidden curriculum and intersectional analyses, and the affective dimension of animal-focused education.

Inspirations

I was a farm kid, tending dairy and beef cattle, pigs, chickens, and roosters, relying on working animals like a border collie and barn cats, and interacting with wild animals with whom my family shared the land, sometimes reluctantly. I took for granted that humans and a wide variety of other animals regularly comingle, recognizing that while sometimes these were mutually beneficial relationships, often death was the end result, particularly for those animals deemed food or pests. I was troubled by these deaths as well as the occasional cruelty I witnessed, but since I did not know anyone else who felt the same way and was unaware of animal advocacy movements, I learned to ignore those feelings. It was not until I moved to Toronto to do my undergraduate degree that the feelings surfaced again when, on my first day in university residence, I shared that I had grown up

[1] In Canada, the BEd is the degree that typically leads to professional teacher certification. The MEd is a graduate degree.

on a farm where we raised various animals. When asked what we did with those animals, I replied bluntly, "We kill them." Much to my chagrin, my nickname briefly became Cow Killer. What fascinated me at the time was that my peers all ate meat and wore leather and it dawned on me that I had unwittingly provoked discomfort. Years after this "a ha" moment, while pursuing a Master in Environmental Studies (MES) degree, I had the opportunity to delve into ideas from environmental philosophy and the then nascent fields of critical animal studies, ecofeminism, and environmental justice, which gave me language and theoretical tools to better understand and talk about my experiences. For example, my supervisor, the late John Livingston, had spent the better part of his adult life working on the conservation frontlines yet sadly concluded in his still relevant book, *The Fallacy of Wildlife Conservation* (1981) that much of his efforts felt wasted because they did not get at root causes like anthropocentrism, the widespread belief that humans are the center of the universe and not only can but ought to dominate the rest of nature and other animals.

Looking back, it saddens me that I had to wait until my MES to be exposed to these ideas. There is no good reason this should not be happening in undergraduate education, or in elementary and secondary education for that matter. Given my commitment to helping create conditions for humans, other life, and the Land to thrive, I seek to go "beyond the human" (Bell & Russell, 1999, 2000; Russell, 2005) in my teaching in the hopes that my students may offer different educational opportunities to their own students. Going beyond the human is complex, however, especially given "some groups of humans have historically been denied full humanity" (Lloro-Bidart, 2018b, p. 159; Bell & Russell, 1999; Russell & Semenko, 2016), thereby illustrating why an intersectional approach that investigates the complex interrelationships of animal, environmental, and social justice issues is vital. Further, as Teresa Lloro-Bidart (2018a) rightly asks, "What or who is beyond the human?" (p. 159). Many folks readily express concern for companion animals or charismatic megafauna, but it can be much harder slogging when advocating for critters who are demonized, dismissed as pests, or face "another form of discrimination – a sort of intolerance by omission" (Bell & Russell, 1999, p. 74; Boileau & Russell, 2018). Further, many engage in willful ignorance when it comes to pondering our relationships with animals considered food (Lloro-Bidart, 2017; Rice, 2017). Nonetheless, Donna Haraway (2016) urges us to learn how to "stay with the naturalcultural multispecies trouble" (p. 40) and her

use of the idea of "naturecultures" is intended to signal the complex ways in which humans, nature, and other animals are entangled (Fawcett, 2013).

Lloro-Bidart and Michael Finewood (2018) provide a helpful overview of the development of intersectionality and they remind us that "it is crucial to acknowledge its lineage in Black feminist thought and, more generally, in the diverse writings of women of color both in the academy and in activist circles" (p. 3). They also note that there were parallel "intersectionality-like" (p. 3) movements such as ecofeminism and environmental justice occurring in the same time period, and that more recent contributions from critical animal studies, disability studies, fat studies, and Indigenous and postcolonial feminisms have further complexified what has become known as intersectionality studies. While Sumi Cho, Kimberlé Crenshaw, and Leslie McCall (2013) laud this widening of scope and describe intersectionality studies as "a gathering place for open-ended investigations" of "overlapping and conflicting dynamics" of oppression (p. 788), there is some resistance to going beyond the human given the persistence of social inequities (Bell & Russell, 2000; Maina-Okori, Koushik, & Wilson, 2017). Nonetheless, a number of scholars are insisting that intersectional analyses "reach across the species divide" (Deckha, 2008; p. 266; Lloro-Bidart, 2018a; Rowe, 2016; Russell & Semenko, 2016). For example, Lloro-Bidart (2018a) advocates a feminist posthumanist intersectionality that recognizes that "the domination and oppression of animals and the environment cannot be understood without a concomitant analysis of the domination and oppression of certain people" (p. 154).

Different approaches to animal-focused education have emerged in the last three decades, including humane education (e.g., Selby, 1995; Weil, 2007), interspecies education (e.g., Andrzejewski, Pedersen, & Wicklund, 2009), critical animal studies pedagogy (e.g., Corman & Vandrovcová, 2014), ecopedagogy (e.g., Kahn, 2008), ecojustice education (e.g., Lupinacci & Happel-Parkins, 2016), common world pedagogies (e.g., Taylor & Pacini-Ketchabaw, 2015), posthumanist pedagogy (e.g., Rowe, 2016), and environmental education that foreground other animals (see Spannring, 2017). While not all are explicitly intersectional and their political commitments to other animals vary, from "moderate, reformist, and radical/revolutionary" (Kahn, 2016, p. 219), I have found that each of these approaches has something to offer pedagogically given I heed a foundational concept in critical pedagogy that educators need to start where students *are*, not where we might wish them to be. In my experience, most students have given little consideration to their relationships with other animals, thus offering a variety of entry points can be helpful.

The Course

I now have taught the course twice as an asynchronous online course for MEd students. Both times, the course very quickly hit its enrollment cap of 20 students with a waiting list, even the second time when an extra section of the course with another 20 students was added and taught by my friend and colleague Jan Oakley. About half of the students were recent graduates of our BEd program who had relatively little experience in the school system beyond substitute teaching while the other half were practicing full-time school teachers or working as educators in other contexts (e.g., college, daycare, seniors' center, outdoor leadership). The majority of students had Euro-Canadian roots, with a few coming from other backgrounds (e.g., First Nations, African, Asian). Of the 40 students in my two courses, 34 were women and 6 were men, and Jan's section had a similar gender breakdown, somewhat reflecting recent demographics in our MEd programs but also possibly indicating females having more interest in the topic.

Because demand for our online MEd course offerings has grown significantly, reflecting a trend in post-secondary education generally (Lewandowski, van Barneveld, & Ertmer, 2016; Smith, Dyment, Hill, & Downing, 2016), an opportunity arose to propose new "special topics" courses, especially if they fit well with one or more of the three specializations in our Education for Change program: environmental and sustainability education; Indigenous education; and social justice education. The course was approved since it fit well with the first specialization and students have an option of counting the course toward one of the other specializations if they focus their assignments on making those connections explicit. At first blush, the course might not seem like an obvious choice for online delivery given the challenges of teaching about controversial issues without being able to facilitate activities to enhance group dynamics or being able to gage body language. Nonetheless, I have not merely been able to make it work in a begrudging sort of way, but find the delivery mode resonates well with an intersectional approach because it makes the course accessible to a wider demographic (Aneja, 2017). Many students would not have been able to take the course if it was only offered on campus, which resonates with Janet Dyment, Jillian Downing, Allen Hill, and Heidi Smith's (2017) findings that the outdoor education courses they offered online attracted "a far more diverse population. There were more mature-aged students, more working people, more parents, less able-bodied persons, less middle-upper class students, and more learners from rural and regional areas" (p. 81).

As part of my intersectional approach, I strive toward polyvocality in course materials. I include theoretical essays, research reports, and descriptions of practice by a diverse group of authors as well as videos, songs, illustrations, and cartoons from strips like *The Far Side* and *Calvin and Hobbes* as fodder for discussion. I begin the course with a glimpse into some of the different ways humans have related to other animals, including: an Indigenous perspective that illuminates a holistic ontology and epistemology that does not separate humans from other animals (Caduto & Bruchac, 1991); a reflection on historical changes in wildlife abundance in North America (Jensen, 2013); an account of a crocodile attack (Plumwood, 1999) and a cartoon featuring two full-bellied crocodiles lounging on a riverbank rhapsodizing, "That was incredible. No fur, claws, horns, antlers, or nothin'" (Larson, 1989, p. 131) to remind students that humans are indeed animals and potential prey; and a lesson plan and video that asks them to ponder why we love some animals and eat others (Rakestraw, 2013; Vegan Talk, 2015). The following week I review different approaches to animal-focused education to make clear that there are debates in the field and no one-size-fits-all approach that works in every context as well as to illustrate that other animals feature most often as part of the hidden and null curricula. We then turn to specific topics such as: learning from and with companion animals, working animals, and common, familiar animals; dissection in secondary school science; classroom pets, animal ambassadors, and animals used in reading programs or therapeutically; food animals; animals encountered in zoos, aquariums, or on wildlife tours; children's literature and media; and public pedagogies such as advocacy-oriented films, journalism, and advertising.

Because it is an online course, asynchronous discussion of weekly content forms a significant portion of students' work. To ensure high quality discussion, at the beginning of the week I have them submit a short response in which they summarize the readings and reflect on one aspect that drew their attention. Students also complete an autobiographical assignment at the outset of the course that asks them to share how other animals featured in their formal education or in their childhood/youth more generally as well as any significant experience(s) with other animals. I remind them that positive, negative, or contradictory experiences can all have profound impacts (Fawcett, Bell, & Russell, 2002). This assignment provides students with an opportunity to reflect on their own personal and educational experiences and it helps me to get a sense of where we, as a class, are starting. For their final assignment, they are given a choice

between a traditional academic essay or a portfolio consisting of a shorter academic essay and other task(s) such as a paper pitched for a teachers' journal, professional development materials for other educators, a children's book, comic strip, zine, or song.

Reflections

Here I will share a few observations gleaned from self-reflection on teaching the Animals in Education course twice and from reviewing student assignments, comments in online discussions, and anonymous course evaluations. Given space constraints, I will focus on only three: the possibilities and challenges of online learning; the importance of unpacking the hidden curriculum and engaging in intersectional analyses, including how education about food animals is particularly illuminating; and the emotional dimensions of animal-focused education, including students attending to their own affective responses and the use of graphic content and cartoons in a pedagogy of discomfort.

Online Learning

Many universities have increased their online course offerings, even in programs that traditionally place high value on experiential, embodied pedagogies such as outdoor education (Dyment et al., 2017; Smith et al., 2016) and gender studies (Aneja, 2017; Richards, 2011). Increasing accessibility and meeting diverse students' learning needs is typically part of the stated rationale for doing so, but as Rebecca Richards (2011) argues, "rarely is critical pedagogy the primary or sole motivation" (p. 19), pointing to institutions' financial motivation to attract a broader student base with fewer demands on physical resources. I was the chair of our graduate programs when we decided to expand our online offerings and we were under some pressure to increase graduate student enrollment, so financial matters were indeed on my mind. Still, rather than merely consent to pressure from above to increase graduate enrollment, we took it as an opportunity to further develop and market our Education for Change program. The courses in the program have counterhegemonic goals given our specializations in environmental education, Indigenous education, and social justice education, but for most of us, figuring out how to embody a critical pedagogy approach online has taken some effort.

In the courses I offer on campus, I tend to use a mix of pedagogical activities to facilitate learning, some of which simply do not translate well to an online environment. One solution to not being able to role model the facilitation of experiential activities, for example, is to share lesson plans (e.g., Selby, 1995) and descriptions of practice (e.g., Lyman, 2014) to help students imagine ways in which ideas from the course might be applied to their own practice; this has been particularly appreciated by the novice teachers. Still, there remain some things I cannot easily do online as an instructor, like reading body language to gage responses to content and discussions. No wonder, then, that some feminist educators denigrate online and distance learning, seeing physically gathering "as a prerequisite to, and enabler of, the kind of experiential learning crucial to feminist pedagogy" (Aneja, 2017, p. 852). Richards (2011), however, advocates a "cyberfeminist pedagogy" that acknowledges "the ways in which digital technologies both subvert and reinscribe gender, race, and other corporeal hierarchies in virtual space" yet "employs many of the most valuable praxes of feminist pedagogy: an ethics of care, collaboration, and community-based exigencies" (pp. 6–7).

One of the ways I practice a cyberfeminist pedagogy is through my determination to facilitate generous and caring yet critical and rigorous discussions so that students can build knowledge together. Judith Lewandowski, Angela van Barneveld, and Peggy Ertmer (2016) observe how online courses that rely on asynchronous weekly discussions can "enable learners to explore multiple perspectives, negotiate content meaning, and identify their own knowledge gaps" but note such discussions "can vary in their effectiveness" (p. 16). They recommend instructors use five types of prompts in online discussions: logistical (assisting students with navigating the course); process (encouraging and modeling high quality discussion); subject (pushing students to dig deeper into content); application (helping students translate ideas into practice in their own contexts); and affective (responding in authentic and caring ways so that they fully engage with challenging materials and ideas). While such prompts are hardly news to those familiar with critical, experiential, and feminist pedagogies, that they work so well in online environments might be. Indeed, I admit that I have been surprised to find the quality of discussion in my online courses to be generally superior to my face-to-face courses. Katrina Meyer (2003) too found that her online discussions were often more thoughtful as students "drew evidence from other sources (either other writers or studies pertinent to the discussion)" (p. 61) and regularly made connections to current events. In my course, I

have found that students regularly referenced other academic writing and current events in their posts as well as uploaded videos, memes, ads, teaching resources, and other materials that greatly enriched discussions.

I also have found that the online environment can be more socially inclusive, particularly for shy students or those who are not as quick to jump into classroom discussions. Meyer (2003) made a similar observation: "The face-to-face discussions were often felt to be 'off the hip' (or 'off the lip' as one student put it), and its speed and the competition for time made it difficult to ask for clarification or research to back up an opinion" (p. 61). While counterintuitive, at least to me, perhaps some online pedagogies could be understood as a variation of slow pedagogy in that they can offer students more time to sit with ideas, carefully craft responses, and reflect on discussions even though they do not offer the experiential opportunities for spending significant time with other animals and the natural world that would be more in line with how slow pedagogy is typically construed in environmental education (Payne & Wattchow, 2009).

The Hidden Curriculum and Intersectional Analyses

Most students asserted in introductory discussions or their autobiographical assignment that they had *no* knowledge of animal-focused education and were not sure what to expect in the course. No students had taken a course in human-animal relations although a few had taken courses with content they thought might be related (e.g., environmental education, environmental philosophy, wildlife biology, a unit in a social work course on animal-assisted therapy). Two teachers had experience with dogs visiting classrooms for a reading program and a few had participated as students in therapy dog sessions on a university campus. Four students were vegetarians for ethical reasons. Many students proclaimed at the outset that they "loved animals," usually referring to their pets, with some posting photos of their dogs, cats, and birds in their introductions. A handful mentioned previous experiences with farm animals, wild animals (observing, hunting, fishing), classroom pets, or school dissection, and a few shared that they feared certain animals (dogs, snakes, spiders, birds).

As the course unfolded, it became clear to all students that they already knew much more than they thought they did, having learned about other animals and animal-human relationships through their own direct experiences, through explicit or implicit teaching in school and mostly through being marinated in anthropocentric cultures. Why do we love some animals

and ignore, fear, or despise others? Why are the only nonhuman animals physically present in secondary schools, typically dead ones to be dissected? What do young children learn from media filled with anthropomorphized talking animals? What lessons might be learned at a zoo, intentional or not? Why is it deemed acceptable to take children on a field trip to a family farm but not a factory farm or slaughterhouse? Students came to see that much of what they had taken for granted as "normal" was in fact culturally and historically specific, such as the practice of secondary school dissection in North America (Oakley, 2009), and deeply imbricated with social inequities as revealed, for example, through analysis of animal-based insults like "fat cow" (Russell & Semenko, 2016). Further, I asked them to consider various educational endeavors from the animals' perspectives through readings (e.g., Hatch, 2007) as well as cartoons, illustrations, videos, and songs. It was the first time, for example, that many had pondered what life might be like for a classroom pet or how programs could be designed to be less anthropocentric and instead mutually beneficial such as those in which children read to shelter animals, thereby improving their reading skills and helping a dog or cat become more adoptable.

Easily the topic that generated the most discussion throughout the course was human relationships with food animals. While I obviously had planned for it to be part of discussions—I had included food-related content at the outset (e.g., pondering how a rabbit could be perceived as a pet, pest, test animal, or food) and had a week devoted to the topic when we watched an animated video about factory farming, *The Meatrix* (Fox, 2003), and discussed school lunch (Rowe & Rocha, 2015), hunting (Pontius, Greenwood, Ryan, & Greenwood, 2013), Mi'kmaq and other Indigenous perspectives on food animals (Robinson, 2014), and activities designed to uncover the speciesism, sexism, and sizeism at play in our relationships with animals like cows and pigs (Russell & Semenko, 2016)—I was surprised in the first year how often students kept returning to the topic. Upon reflection, however, it made sense given most of the students ate meat, which was one of the most intimate ways they interacted with other animals on a regular basis. Aside from the vegetarians and a few hunters, most students admitted they gave little thought to the animals they ate and expressed shock at the conditions of animals and workers in factory farms. A number vowed to change their eating habits and began exploring vegetarianism or veganism, although I have no data on whether they did so over the long term or not. Others expressed uneasiness at the exposed contradiction between their espoused concern for other animals

and their enjoyment of meat, with some stating that they would have preferred to "not know," illustrating how willful ignorance can be at play (Lloro-Bidart, 2017; Rice, 2017).

The Emotional Dimensions of Learning

Teaching about animal, environmental, and social justice issues involves exploring contentious issues and challenging the status quo, so emotions can run high. In this course, that is especially true when we delved into "hot" topics where disagreements are bound to emerge like food animals, hunting, dissection, animal experimentation, and zoos. As well, emotions like wonder, love, and joy are often evoked when students marvel at the feats of other animals or discuss deep-seated connections to other life, although these moments can also come with a tinge of sadness if there has been loss. Other times, frustration and anger erupted as students bore witness to the violence enacted on other animals or particular groups of people, or guilt and shame emerged as they grappled with their own complicity. A sense of hope was also present, pervading discussion of the ways they could make a material difference as educators. Attending to the affective is increasingly being recognized as important in environmental education and beyond (Russell & Oakley, 2016) and I explicitly discussed emotions with students, both their own responses as well as the need to consider those of their own students, particularly in the younger years.

To help create the conditions for students to engage productively with contentious issues and with each other, I was clear about "netiquette" and I shared my own learning/unlearning journey, trying to model a generous approach that is both critical and respectful (Russell, 2006). The autobiographical assignment was helpful in grounding inquiries in students' experiences, and I facilitated discussion of the portions they chose to share with the group to tease out points of convergence and divergence (Fawcett, Bell, & Russell, 2002). I also asked them to report on how often they used "feeling words" in their autobiographies, which almost all did. A handful shared frightening encounters or their disgust at school dissection or anger at the treatment of food animals, but most students' writing was overwhelmingly filled with positive stories of relationships with companion animals; these accounts described love, empathy, trust, comfort, joy, excitement, and wonder as well as a few mentions of grief and sadness related to loss (which we delve into later in the course when discussing Joshua Russell's (2017) research on animal death). Starting with these

mostly positive lived connections as well as ensuring that course materials feature descriptions of other animals living their lives and/or as agential participants in multispecies flourishing (e.g., Caduto & Bruchac, 1991; Fawcett, 2014; Lyman, 2014; Pacini-Ketchabaw & Nxumalo, 2015; Robinson, 2014) is in line with Lauren Corman's (2017) assertion that "it is far more powerful to combine representations of nonhuman animal suffering with representations of their lives outside of such states and conditions" if we want to keep students "open to engaging with the brutal realities facing humans, other animals, and the planet" (p. 254).

While wary of the dangers of reducing "animal subjectivities to representations of suffering and victimization" (Corman, 2017, p. 252), I nonetheless have included content in my course that explicitly describes or depicts animal suffering, particularly related to food animals and dissection. I provide warnings so that students can prepare themselves or avoid certain content if needed, but even so, sometimes they are surprised. I have sought feedback from students during and after the course about the use of such content and with the exception of one student, they responded that they found it pedagogically powerful, particularly the videos. One student, for example, said it provided "just the right amount of disturbance" which I find encouraging given how tricky it can be to find the sweet spot in pedagogies of discomfort (Boler, 1999). We explicitly discuss the pedagogical potential and pitfalls of using such content (Corman & Vandrovcová, 2014), including the importance of being age-appropriate (Kelsey & Armstrong, 2012). Like Johnny Lupinacci (2018) who works with comics and graphic novels, I have found having students unpack cartoons from strips like *The Far Side* and *Calvin and Hobbes* particularly helpful in illuminating the cultural and historical specificity of anthropocentric assumptions. The cartoons I use reflect the incongruity theory of humor where enjoyment is found in the violation of expected patterns (Morreall, 2014), in this case because they typically reverse the roles of humans and animals. It is not a surefire approach, however, given there are generational and cultural differences in what is found funny; as John Banas, Norah Dunbar, Dariela Rodriguez, and Shr-Jie Liu (2011) note, for "humor to facilitate learning, students need to perceive and then resolve the incongruity… If the students do not resolve the incongruity, they may experience confusion instead of humor" (p. 119). Thankfully, most students reported finding the cartoons funny and remarked that they were a less threatening way to generate discussion on contentious issues and provoke intersectional analyses, with many stating that they planned to use some of the cartoons in their own teaching.

Conclusion

I am delighted to have had the opportunity to offer this course as a special topics course. Given student interest, I anticipate that it will eventually become a calendared course that will be offered regularly, so I should be able to continue developing it. As foreshadowed above, there are a few matters that deserve further attention as I do so. How could I be more innovative in my use of online pedagogies to heighten intersectional analyses and deepen emotional engagement through embodied experiences? While I like the idea of including service learning opportunities that enable intersectional analyses of the complexity of animal, environmental, and social justice issues (Lloro-Bidart, 2018a) or arranging class visits to places like farm sanctuaries (Corman, 2017) to enable students to viscerally experience the subjectivity of animals deemed food and to learn about an organization that critiques and resists capitalist food production, these options are not feasible in an online learning environment where students are spread across the globe. Still, I think there are other possibilities that might work. For example, I already use a natural history assignment in both face-to-face and online environmental education courses that involve students regularly observing another animal, plant, or natural area over a sustained period (Fawcett, Bell, & Russell, 2002) that I could adapt for this course. I also am pondering creating an assignment that would require students to observe or engage in some sort of animal-focused educational activity in their home community like Lloro-Bidart (2018b) does in her critical food studies course to have students "meet their meat" (p. 156). Dyment et al. (2017) have used "self-directed learning activities" in their online outdoor education courses with success, having students "observe outdoor learning, conduct an activity, collect evidence (e.g., taking pictures, a video or writing a journal entry) and report back to the other students," and they found that the "experiential component of the online learning activities was highly valued" (p. 78).

I also would like to further examine the efficacy of different choices I have made regarding course content and pedagogy. For example, I know I have much more to learn about how to engage in pedagogies of discomfort, particularly around contentious topics like food animals and dissection. I also am intrigued that, as yet, I have seen little attention given to the pedagogical potential of humor in animal-focused or environmental education (for an exception, see McKenzie, Russell, Timmerman, & Fawcett, 2010). Finally, even with a feminist pedagogy that attends to affective dimensions and an intersectional approach that seeks to unveil

the structural underpinnings of animal, environmental, and social justice issues, there are wider social, cultural, and material constraints in place that make it challenging for all of us, teachers and learners alike, to even make individual "domestic" changes, let alone work toward more systemic change (Breunig, Murtell, Russell, & Howard, 2014; Lloro-Bidart, 2018a). While I certainly do not expect a single course to change the world alone, I nonetheless have a sense that there were "a ha" moments that may have been transformative for some, and it would be interesting to follow up with past students after a period of time to determine how, if at all, the course influenced them personally or professionally over the long term.

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CHAPTER 4

Intersectional and Interdisciplinary Approaches to Interspecies Food Justice Pedagogies

Teresa Lloro-Bidart

Introduction

> The animal petting farm encourages an intimate relationship with animals. In fact, workers encourage us to touch and talk to the animals. There's even a tour where workers teach us how to milk a cow correctly without hurting them. I no longer consume meat or dairy, but when I did eat meat I remember not thinking about the pain animals felt nor whether they had a good life before being slaughtered. To be honest, there's nothing for the animals; they are raised to simply make it into the plates of humans…I do not think the family farm is any good, because if people are like me, I could not meet a chicken and later let it be killed just for me to enjoy chicken soup. (Shelly, Farm-visit field notes, Spring 2017)

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> The space seemed like a good amount of room for them to walk around. I estimated 25' x 100.' These were three female cows. Two were black and white and one was brown…I left the farm feeling giddy because of all of my interactions with the animals. I thought they were all cute and cuddly and just needed my attention. I saw that one of the pens with pigs living in it had a sign that said: "Organic and Grass Fed Beef and Pork Sold here!" In my mind, I didn't know the real fate of these animals. I was just hoping for the best [and wishing] they were all just grown to make a happy petting zoo farm. I knew that out of all of these farm animals, I have eaten one form of them or another, except for the sheep and goats…I went home to take a deeper look into the farm's purpose… I read [and] learned the most heart-breaking news, the farm focuses on "the humane raising and harvesting of pigs and bovines for the purposes of consumption." My heart sank. (Marie, Farm-visit field notes, Winter 2017)

Clearly, the small family farm my students describe above is not typical of most contemporary forms of animal agriculture in the US, as many critics highlight (e.g., Darst & Dawson, 2019, Chap. 12). Not only do students describe having intimate contact with the animals living there (e.g., Corman, 2017), but most also document what they consider to be decent living conditions. Further, this farm's workers willingly take visitors on tours and appear to be laboring under fair conditions. Due to "ag gag" laws in the US, a term coined by former *New York Times* columnist Mark Bittman in 2011, some states prohibit this kind of access to animals and workers in concentrated animals feeding operations (CAFOs) that produce the majority of US meat and poultry (American Society for the Prevention of Cruelty to Animals, 2017; Center for Constitutional Rights, 2017). According to the Center for Constitutional Rights, state ag gag laws have proliferated since 2011 and are designed to hinder undercover investigations and whistleblowers. They typically include at least one of the following elements: "(1) prohibiting documentation of agricultural practices; (2) prohibiting misrepresentations in job applications utilized to gain access to closed facilities; and (3) requiring immediate reporting of illegal animal cruelty" (2017, p. 2). Although the third element may seem favorable to animals, it "outs" undercover investigators, making them unable to document wider instances of violence. Further, even in states where ag gag laws do not exist, CAFOs typically remain completely closed to the public, obscuring the ways in which they treat animals like inanimate and nonliving parts of the industrial food chain, and contribute to significant environmental degradation and human suffering (Ackerman,

Musil, McAuliffe, Brunson, & Reynolds, 2017; Darst & Dawson, 2019, Chap. 12; Harper, 2010; Kim, 2015; Ko & Ko, 2017; Potts, 2017).

Although small working family farms and sustenance farms, like the one my students visited, appear to significantly reduce human suffering through better working conditions and lessen animal suffering through the provision of greater amounts of space, higher quality food, and sometimes physical care, animals are ultimately slaughtered in all of these farms. Such tensions were well on display in the quotes opening this chapter. Shelly, the student in the first excerpt, notes how she abstains from eating meat and dairy. Marie, the student in the second excerpt, describes her heartbreak when she learns that the animals on the farm are destined for slaughter. Therefore, in sharing these student vignettes I certainly do not intend to romanticize what life and death are like for animals on family farms, nor what they offer in terms of addressing social justice issues, but rather seek to highlight the multiple and overlapping contingencies and tensions associated with all forms of animal agriculture, even those that appear as "humane" (Pollan, 2002). In this chapter, I explore what it means to engage with these contingencies and tensions in environmental education.

Such cracks and ruptures raise critical questions about the convergence of theory and pedagogical practice in critical food systems education (CFSE) and animal-focused education (AFE). Critical animal studies perspectives are notably absent in much of the literature in Critical Food Studies and CFSE, which tends to focus explicitly on social axes of difference (race, class, gender, disability) without consideration of animal oppression (e.g., Probyn-Rapsey et al., 2016; Sachs & Patel-Campillo, 2014; Williams-Forson & Wilkerson, 2011). In contrast, some work from animal advocacy or liberationist perspectives does not significantly engage with questions about the social justice dimensions of animal agriculture (e.g., Harper, 2010, 2012).[1]

This chapter is thus guided by the following questions:

- How do we, as educators committed to enacting and teaching food justice, include other animals in our pedagogies?
- How do we, as educators committed to animal liberation, include social justice in our pedagogies?

[1]There are many notable exceptions, which include: Lauren Corman and Tereza Vandrovcová (2014), A. Breeze Harper (2010, 2012), Brandy Humes (2008), Richard Kahn (2011), and Jan Oakley (2019, Chap. 2).

Although there are diverse theoretical approaches that might inform such a pedagogical project, I draw on theories of intersectionality to develop an "interspecies food justice" approach to teaching about food systems, especially animal agriculture. This approach builds on critical scholarship in environmental education, humane education, and other fields that seek to center the lives of animals, marginalized humans, or both, along with the environment (e.g., Corman & Vandrovcová, 2014; Dinker & Pedersen, 2016; Freeman, 2015; Harper, 2010, 2012; Humes, 2008; Ko & Ko, 2017; Linné, 2015; Linné & Pedersen, 2014; Lupinacci & Happel-Parkins, 2015; Oakley, 2019, Chap. 2; Oakley et al., 2010; Pedersen, 2015; Pedersen & Stănescu, 2012; Rice, 2013; Russell, 2005, 2019, Chap. 3; Russell & Fawcett, 2013; Spannring, 2017; Weil, 2004; Wright-Maley, 2011). I note here that "animal agriculture" is itself a problematic category insofar as it lumps all forms of raising animals for food into one category despite vast differences.

After this initial theoretical framing, I provide a brief overview of the Critical Food Studies course I teach and research at a large public university in Southern California, highlighting how intersectional theories guide my own pedagogy, as well as my positionality as an educator and scholar who cares deeply about animals and social justice (Lloro-Bidart & Finewood, 2018). To illustrate my praxis, I provide specific examples of pedagogical tools I employ in the Critical Food Studies course. Next, I explore how interdisciplinary intersectional pedagogies might afford students the opportunity to understand injustices as intricately linked through power structures (e.g., neoliberal capitalism) that exploit animals and some humans alike. To do this, I briefly analyze and share several pieces of empirical data from my research on the course. I conclude by drawing out the implications and tensions of this research for CFSE and AFE.

Theoretical Framing

Feminist Posthumanist Intersectionality

Intersectionality is a complex research methodology, conceptual framework, and theory usually associated with Patricia Hill Collins' (1990), Kimberlé Crenshaw's (1989, 1991), and the Combahee River Collective's (1977/1993) foundational Black feminist writings in the late twentieth century, although its roots date all the way back to Black feminist writers like Maria Miller Stewart (1830), Harriet Jacobs (1860), and Anna Julia Cooper (1892) (Hancock, 2016). Collectively, these women demonstrated

that to understand the unique experiences and oppressions of Black women, sex/gender and race must be simultaneously considered. The Combahee River Collective also included class and sexuality as key axes of difference in their intersectional project. Intersectionality, as both an activist and academic concept, thus argues that single-axis approaches to understanding social life are flawed as they assume that people can disaggregate the multiple and intersecting categories of difference that comprise their social experiences (Carastathis, 2014).

For the last several decades, ecofeminists similarly drew on intersectionality-like thought in order to analyze the co-occurrence of the oppression of women, animals, and the environment (Adams & Gruen, 2014), although some early work was charged with essentializing the category "woman" as a White, Western, middle-class subject (Deckha, 2012). Early ecofeminist writing was critically significant despite these limitations because it included species and animality as key axes of difference in the intersectional project and drew much needed attention to the plight of all animals, but especially neglected ones like food animals (Adams, 1990/2015; Adams & Donovan, 1995; Donovan & Adams, 2007). Simultaneously, the environmental justice movement began to make visible the concerns of communities of color disproportionately impacted by environmental degradation and environmental "bads," like the siting of toxic substances disposal facilities or the building of CAFOs (Bullard, 1990/2000; Pulido, 2000). At this time, mainstream environmental movements, like the Sierra Club, sidelined these intersecting social and environmental concerns in favor of ones considered more appropriately "ecological" (Willow, 2015), although Susan Mann's (2011) historical research outlines the important contributions women, especially Black women, made to environmental activism at this time (see Lloro-Bidart & Finewood, 2018 for further discussion).

Contemporary ecofeminist and feminist posthumanist activists and scholars now center the categories "species" and "environment" along with gender, race, class, sexuality, ability status, and size (e.g., Adams, 1990/2015; Adams & Gruen, 2014; Deckha, 2006, 2008, 2010, 2012, 2013; Feliz Brueck, 2017; Harper, 2010, 2012; Humes, 2008; Kahn, 2011; Kim, 2015; Lloro-Bidart, 2015, 2017b; Lloro-Bidart & Semenko, 2017; Maina-Okori, Koushik, & Wilson, 2018; Russell & Semenko, 2016). However, the inclusion of animality or species in most food studies scholarships, even that which embraces feminist or other critical approaches, is still quite limited (e.g., Harris & Barter, 2015; Sachs & Patel-Campillo,

2014; Williams-Forson & Wilkerson, 2011).[2] Including animality and species in intersectional food studies not only offers tools to undo problematic monolithic categories in praxis, but also helps students understand how the domination and oppression of animals, the environment, and subjugated peoples stem from similar systemic roots like colonialism, capitalism, and patriarchy (e.g., Andrzejewski, Pedersen, & Wicklund, 2009; Corman & Vandrovcová, 2014; Di Chiro, 2006; Harper, 2010, 2012; Rowe, 2013, 2016; Rowe & Rocha, 2015; Russell & Semenko, 2016), a key focal point of my own pedagogy.

Toward an Interspecies Food Justice Education

Julian Agyeman and Jesse McEntee remind us, "Food justice as a social movement arose largely from urban-located social justice groups that explicitly addressed food inequalities based on race and/or socioeconomics" (2014, p. 212). Through cross-pollination with food justice activism and scholarship in the Global North and Global South, CFSE has recently developed as

> a tripartite perspective consisting of a theoretical framework, set of pedagogies, and vision for policy that posits food systems education as an inherently political and economic process that is mediated by racial and ethnic histories and identities, while also maintaining that these educational processes can be transformed to be a form of education for liberation. (Meek & Tarlau, 2015, p. 134)[3]

As this definition of CFSE illustrates, mainstream food systems education tends to perpetuate racial and class-based narratives that ultimately foster social exclusion (e.g., vis-à-vis local food or "farm-to-table" movements), despite amiable intentions like "bring[ing] good food to others" (Guthman, 2008a, p. 434). Other critical food systems scholars also highlight the ways in which food production is itself a geopolitically racialized endeavor that inflicts tremendous human suffering (Harper, 2010). A. Breeze Harper (2010) illuminates, for example, how "cruelty free" products like vegan chocolate may not harm animals, but require the labor of exploited and

[2] For example, Carolyn Sachs and Anouk Patel-Campillo (2014) only mention "humane farming" once in their article "Feminist Food Justice: Crafting a New Vision," without exploring animal justice issues in food production at all. Richard Twine (2010) also notes how the nonhuman is excluded from the "political" in much intersectional feminist writing.

[3] Also see Lina Yamashita and Diane Robinson (2016) on critical food literacy and David Meek and Rebecca Tarlau (2016) on critical food systems education and food sovereignty.

sometimes enslaved people of color in the Global South who produce these goods for (mostly) White consumers in the Global North.[4] Harper, a vegan activist, also challenges violence committed against farm animals in CAFOs noting, "One of the most violent places imaginable is the modern day slaughterhouse" (2010, p. 33). Similarly, Connie Russell and Keri Semenko contend that CFSE "must include illuminating the horrifying conditions for both animals and human laborers in the factory farms and slaughterhouses responsible for much of the meat and dairy consumed by North Americans and elsewhere" (2016, p. 217), suggesting that CFSE not only consider how such systems impact consumers of food along lines of race and class, but also producers (factory farm and slaughterhouse laborers and fieldworkers) and the animals who have no choice but to participate (and ultimately suffer and die) in these processes.

Thus, while David Meek and Rebecca Tarlau's (2015) definition of CFSE is compelling and critically significant, tackling the glaring injustices committed against other animals in global food systems might assist students in better understanding the complexities of food production and its relationship with multiple axes of oppression.[5] My chapter begins to demonstrate, therefore, how CFSE would benefit from intersectional analyses that concomitantly delve deeply into race, class, and species, as well as other forms of injustice. In the following sections, I explore what an interspecies food justice education informed by intersectionality might look like in practice.

"Classroom" and Research Context

Since the 2015–2016 academic year, I have taught a Critical Food Studies course to Liberal Studies undergraduates. The course requires the completion of eight hours of service-learning in a local community garden.[6] In the

[4] Many vegan "dairy" products might not harm cows, but they do indeed inflict animal and human suffering. Some of these products, for example, use palm oil or palm fruit oil as ingredients. Palm oil plantations in Borneo and Sumatra have contributed to deforestation and dwindling orangutan populations there (Lam, 2013). In both Southeast Asia and South America, palm oil plantations threaten Indigenous land rights and have led to violence being inflicted on Indigenous people (Miroff, 2014; Sha, Capasso, Belohrad, & Godio, 2016).

[5] One could also argue that CFSE has yet to grapple significantly with other axes of social difference influencing food production and access, such as ability status, gender, body size, and sexuality (Carrington, 2013; O'Flynn, 2015; Russell & Semenko, 2016; Stovall, Baker-Sperry, & Dallinger, 2015; Williams-Forson & Wilkerson, 2011). Due to space limitations, I do not explore these here.

[6] For more a more detailed description of the community garden, see Teresa Lloro-Bidart (2018a, 2018c).

state of California, Liberal Studies has historically served as a general interdisciplinary degree for pre-credential elementary school teachers, although about 30–40 percent of my students choose not to pursue teaching careers. My department does not collect demographic data regarding student gender, race/ethnicity, and socioeconomic status, but most students in my courses are women and hail from diverse racial and ethnic groups. Campus demographics demonstrate our student population is racially and ethnically diverse and that we serve a large number of first-generation college students.[7] I highlight my students' demographics here because prior research has shown that student social class and race/ethnicity influence how they view their work in Critical Food Studies courses (Guthman, 2008a), particularly when they do service-learning or community-engaged projects like my students. Further, many of my students discussed their own cultural and ethnic backgrounds in their coursework and interviews, intimating that relationships with food can best be understood contextualized as such.

Since I started teaching the course, I have collected ethnographic data through writing fieldnotes, conducting post-course interviews with my students ($N = 20$), and collecting a variety of student work ($N = 40$), much of it also ethnographic in nature. I train my students, for example, how to be novice ethnographers (through the writing of jottings, fieldnotes, and analytic memos) (Emerson, Fretz, & Shaw, 1995). They also write an autoethnography of their experiences in the course as part of their final project (Lloro-Bidart, 2018a, 2018c). Given the project's focus on animal and human experiences, I embrace the methodology of multispecies ethnography informed by a feminist posthumanist theoretical framework (see Lloro-Bidart, 2018b). Since I have taught the course six times, I have had the opportunity to modify my curriculum and pedagogy as I respond to informal and formal student feedback, as well as what I learn about my students' experiences through post-course interviews and their autoethnographies. In an earlier iteration of the course, for example, I found that some students embraced novice intersectional thinking about the oppression of food animals and workers who produce our food, despite the fact that I only embraced an implicitly intersectional approach in my teaching

[7] The most recent demographic information available indicates the following racial/ethnic backgrounds of students at my institution: 39 percent Hispanic; 24 percent Asian; 20 percent White; 6 percent identifying as non-resident alien; 4 percent two or more races; 4 percent unknown; 3 percent Black Retrieved from https://www.cpp.edu/~aboutcpp/calpolypomona-overview/facts-and-figures.shtml and https://www.cpp.edu/~our-cpp/our-story/data-reports.shtml

at that time. I then modified classroom readings and activities so that co-occurring oppressions (a key aspect of intersectionality) became a theme throughout, particularly when discussing food production.

In the most recent iteration of the course, students complete a three-to-four-week unit where they explore various aspects of food production, including workers' rights and animal rights. Since my students are not majors in ecology, geography, environmental studies, and sciences, or another degree where they would necessarily have some expert knowledge of environmental issues and/or a pre-existing commitment to challenging animal, environmental, or ecological injustices, I begin this unit with a brief introduction to the history of agriculture, followed by a short sequence of readings and activities to familiarize them with the Green Revolution and contemporary industrialized agriculture (Carson, 1962/2002; Food Empowerment Project, 2018; Hesser, 2006; Shiva, 2000). Next, we examine the treatment of workers who produce our food (fieldworkers and workers in CAFOs) (Nicole, 2013; Singer & Mason, 2006), and the environmental/health impacts of CAFOs on fence line communities (e.g., Greger & Koneswaran, 2010; Hribar, 2010). In-class assignments ask students to study and then critically evaluate Fair Trade policies and their own ability to access information about companies selling products labeled Fair Trade, as well as policies that (fail to) protect the rights of workers in CAFOs.[8] At this point, most students are deeply concerned about the multiple and intersecting oppressions of people in food production. Indeed, every time I teach the course there are a handful of students who discuss how they personally connected to these issues because they or their family members had worked in agricultural fields, sometimes under exploitative conditions.

Next, I build on students' already budding concerns about food systems and segue into activities that have them explore the lives of animals who serve as food in Western societies (chickens, cows, fish, goats, crustaceans, mollusks, pigs, sheep, turkeys), with a particular focus on CAFOs. Even though I have been vegetarian for several decades and recently became vegan, I do not share this information with my students unless I

[8] In the US, workers in CAFOs are typically those earning a low income and/or people of color, including migrant workers from South and Central America (Food Empowerment Project, 2018), which we discuss in class. Similarly, the communities surrounding CAFOs are typically rural, low-income communities and/or communities of color (Edwards & Ladd, 2001; Nicole, 2013).

am asked because I do not want them to feel pressured to "convert" to my lifestyle. Rather, I want to help them to develop a critical perspective related to food production so that they can decide what kinds of changes make sense to them. If they do ask, I am open with them about my journey to veganism and draw on documentaries like "Invisible Vegan" (http://www.theinvisiblevegan.com/) to demonstrate that my goal is not to be the "food police" or to shame them for their eating habits, but rather to open up a critical dialogue about meat eating.[9]

Although I would be delighted if all of my students became vegan after my course or decided to purchase only Fair Trade food products, I realize this is unrealistic for myriad reasons, including economic ones. Furthermore, even if they were to enact these lifestyle changes, such a narrow focus on individual consumption patterns reflects contentious neoliberal ideologies entrenched in consumerism that would not necessarily solve global food injustices. As noted elsewhere, these kinds of actions can be problematic when insufficient attention is given to collective forms of social and ecological reform not tied to markets (Guthman, 2008b; Hursh, Henderson, & Greenwood, 2015; Lloro-Bidart, 2017a; Lukacs, 2017), as well as when they do not address the sociopolitical and economic aspects of access to vegan and vegetarian foods (Harper, 2010, 2012).

Thus, to introduce this topic I have students take a brief online quiz (with the anonymized class results visible to everyone on the platform Kahoot.it to foster class discussion) about their attitudes toward meat eating, including if they have ever participated in animal slaughter. Every quarter, there are several students identifying as vegetarian/vegan as well as a handful who have participated in animal slaughter with their parents, much like I did as a child. Some of these students willingly share their experiences, which provide the whole class with cross-cultural perspectives on meat eating. One Filipino student noted, for example, that wasting animal parts at the point of slaughter/production or throwing meat in the trash is disrespectful in his culture. Besides the obvious ethical questions he raised about meat eating, he also pointed

[9] See: https://www.youtube.com/watch?v=dr5wVR4NLWk&t=1223s. At 19:50 minutes Jasmine Leyva, co-creator of the "Invisible Vegan," discusses a conversation with Critical Food Studies scholar, Psyche Williams-Forson. Leyva shares an important perspective related to food policing, particularly as it relates to the policing of African American people. Since most of my students are women of color and I am a White, cis-gender, middle-class woman, I believe that it is important to include these perspectives in my classroom, especially when I discuss my own veganism.

to another salient topic: food waste is a significant issue in the US (United States Department of Agriculture, 2018), particularly food waste that contains animal products because of the amount of energy, resources, and suffering that go into producing food containing animal products. Further, this discussion fostered openness as students realized that the other students in the class did not necessarily hold the same perceptions of meat eating as they did.

After these initial activities, students then draw on interdisciplinary readings (including from anthrozoology, ethology, animal cognitive science), videos, websites, and other materials to begin to analyze and understand the cognitive, emotional, and social capacities of farm animals, all of whom suffer tremendously and die in CAFOs (Potts, 2017). Breaking into smaller groups, each group then selects one focal animal to study. The resources I provide as a starting point do not show any graphic content or footage from slaughterhouses, though some students choose to view this material on their own. I avoid graphic content both because I do not want to traumatize students who might be sensitive to these kinds of images and also because that content is readily accessible online should students chose to view it (See Russell, 2019 for a discussion of "pedagogies of discomfort"). In addition to this classroom-based work, my students also visit a petting farm or a local farm that promotes its own use of sustainable practices and allows visitors to "meet their meat." Having students interact with farm animals who later become meat sold at the farm's market, alongside the fresh fruit and vegetables grown there has been pedagogically helpful, as the excerpts opening this chapter illustrate.[10] Students can also meet the farmworkers, who offer guided tours to the public or go on an unguided tour. Since I train my students as novice ethnographers, while at the farm they take jottings and later write up those jottings as fieldnotes and produce analytic memos. Engaging with the methodology of ethnography during the farm visit, as well as when they do their service-learning in the community garden, provides the opportunity to closely study socioecological phenomena while developing skills to critically evaluate and reflect on their own life experiences as consumers in the Global North. This bridging of theory and practice draws on interdisciplinary perspectives in

[10] Cal Poly, Pomona's campus petting farm is called "Danny's Farm." We are one of four California State University campuses with Colleges of Agriculture (http://dannysfarm.org/). While the animals at Danny's Farm are safe from slaughter, many other animals on my campus are raised for production. Students can also visit petting farms or working farms in their local communities as long as they allow interaction with farm animals.

experiential education (Gray & Birrell, 2015; Lloro-Bidart & Russell, 2017), critical animal pedagogy (Corman & Vandrovcová, 2014), and service-learning pedagogy (Jones & Abes, 2004; Kahl, 2010) while incorporating an intersectional perspective not present in all interdisciplinary teaching and research.[11]

Intersectional Learning

In this section, I briefly feature the experiences of two students who illustrate well the sorts of intersectional learning that occurs in the course. Shelly, whose fieldnotes opened this chapter, is the daughter of Central American immigrants, both of whom were affiliated with coffee plantations in their native country. During our class discussion about meat eating, Shelly self-identified as vegan. The second student, Lisa, describes herself as having German/Italian roots and as being an animal lover, though she was not vegetarian before taking the course. Although there were many students each quarter who described transforming their attitudes toward food animals or people who produce food, I highlight Shelly and Lisa's cases here because each woman uniquely draws on her own cultural background and personal experiences to connect to the course in such a way that they recognized the intersectionality of animal and human oppression in food production.

Shelly

Recall that in the excerpt opening this chapter, Shelly reflects on her own veganism when she visits the working farm, noting how she could not meet and justify killing a chicken so she could have chicken soup. While some students visited the family farm and felt better about the possibilities of eating "humane meat," others expressed more ambiguous attitudes. For example, some shared that they really connected to the animals and could never eat meat sold at the farm's store, but nevertheless would continue to eat meat from CAFOs despite knowing how much animals suffer in

[11] In the most recent version of the course, as a follow-up to all of the activities described above, I had the students complete a modified version of Zoe Weil's (2004) "Behind the Scenes" and "True Price" activity: https://humaneeducation.org/blog/2012/true-price-the-keystone-humane-education-activity/

CAFOs. Shelly's case is thus interesting not only because the visit to the family farm did not convince her that meat can be humane, but also because she connected to other injustices in food systems. As the excerpt below illustrates, when Shelly worked in the local community garden to fulfill her service hours for the course, she connected her own family's experiences (her father being a coffee plantation worker in Central America) to her labor in the garden, as well as to systemic injustices in food systems.

> I remembered my father's stories and worked in the garden. I meditated on how unjust the system was with their workers. In fact, I remembered Singer and Mason's book on the food we eat and the toll the food industry has on its workers. Singer and Mason reported on Tyson being a growing food corporation [and how it] holds the record for low wages and no health benefits to their employees. In fact, in 2003 the company began a new contract where it "included pay cuts, no pensions for new workers and frozen pensions for existing workers, cuts in vacation time, and higher health insurance co-payments for an inferior health-care package" (2006, p. 33). Instead of taking into consideration the hard labor the workers put in to help their corporation run smoothly, they are not caring about the employees' wellbeing. The manual labor I put in during my time at the garden opened my eyes to appreciate the sacrifices these workers must make in order for me to have food on the table. I remembered my father's family that still worked in coffee plantations and felt a tremendous pain for the way they are cheated. Also, I remembered the activity we did in class where we read how large corporations cheat small farms and other people around the globe out of their crops. It pained me to see my people starving and working so hard to make minimum wage.

In this passage, Shelly clearly links her knowledge of systemic food injustices (e.g., Tyson's treatment of workers in CAFOs) to her embodied experiences performing labor in the community garden. These multiple knowledges invoked empathy not only for her family members who toiled or still toil on coffee plantations, but also for agricultural workers more generally. Although Shelly does not explicitly raise issues of animal oppression in this excerpt, the entirety of her class experiences demonstrate that she has an understanding of how food systems oppress humans and animals alike. In a post to the weekly Discussion Board where I asked students to write about the marginalization of workers' rights, the environment, and animal wellbeing in food systems, she noted, for example, that: "Larger demands for meat and dairy forced farms to change their methods and completely industrialize to meet consumers' daily needs.

In fact, workers were not the only ones who had to adapt to the rapid change, but even animals had to adapt to a new environment…the marginalization of animals relates to or is intertwined with the marginalization of workers' rights."

Lisa

Lisa's experiences in the course, like Shelly's, also demonstrate intersectional understandings of food systems:

> After learning about CAFOs and those who work in [them] and our project on animal rights and environmental costs I was absolutely disgusted with myself. My whole philosophy for eating meat was "ignorance is bliss." I do not want to know what happens behind the curtain and I do not want to know if animals have the ability to possess emotion or cognition. Our group presented our project on pigs and I was surprised to learn how smart pigs are and can suffer stress like humans… While at the Farm I met Pumbaa the pig and was reminded why I was choosing not to eat meat. I have always loved animals but I never thought of going vegetarian simply because meat tastes good…I was able to feed and pet them for as long as I wanted. It was the connection I made with them that brought my project full circle. I felt like the biggest hypocrite saying I loved all animals and eating some of them. I learned that I am not only a product of my culture, but a product of the American food system.

Here, Lisa clearly displays her understanding that CAFOs unjustly oppress workers, animals, and the environment as she also expresses disgust at her past eating habits. In her post-course interview, she shares that she had conversations about workers' rights with her family, whom she describes as "unwilling to learn or change." Further, she begins to realize that her prior practices not only stem from her cultural background ("being of German/Italian roots," which she describes as a "meat eating" culture in our interview), but also political economic structures like the industrialized American food system, which binds all humans in the US to each other, animals, and the environment in often exploitative ways.

Since the course also engaged with works in the natural sciences demonstrating the complex emotional, social, and cognitive lives of farm animals like pigs, Lisa also recognized that pigs are not innately "food" for humans, but rather sentient living beings who possess cognitive and emotive capacities, as well as the ability to suffer and feel pain, much like her family dogs. In her interview, Lisa rejected a form of Western speciesism that privileges pets like dogs, elaborating on why she felt like a hypocrite: "And then I

thought about my dogs and I'm like they sleep with me every night and so I'm just like, I can't eat a cow, [which] is basically a big dog and then just go home and snuggle with my dog." Further, Lisa specifically cites her embodied interactions such as feeding and petting Pumbaa the pig as "remind[ing] [me] why I was choosing not eat meat." In this course, she thus confronted her own agency (the capacity to not eat meat) and how it is intertwined with that of animals whom she now understands as expressive, feeling beings and not simply as "meat." Lisa also confronts the reality that while she feels greater connections to the people who produce our food, her family does not (see Lloro-Bidart, 2018b for further discussion). In a follow-up conversation two months later, Lisa confirmed that she was still vegetarian and that it was the course that inspired her to make this change.

Implications: Making Visible the Invisible

Most agricultural labor in the US and beyond is invisible to consumers in the Global North, who purchase their food from grocery stores and markets. Intersectional pedagogies can visibilize the complex oppressions of workers, while also illuminating how marginalization is intimately tied to global capitalism, neoliberalism, race, and class (e.g., Harper, 2010, 2012). In addition to workers, animals are invisible and unwilling participants in food production, with the end result that most, if not all, face death. As (Darst & Dawson, 2019, Chap. 12) emphasize, many animal rights approaches to teaching about meat eating invoke what is referred to as the "meat paradox," or a kind of cognitive dissonance whereby people tend to resolve their dissonance through "a combination of denial and stigmatization of those who question the cultural dominance of meat consumption" (Darst & Dawson, 2019, Chap. 12), as well as through willful ignorance (Adams, 1990/2015). They suggest that one way educators can discuss the morality of meat consumption with students is to initially frame the problem in such a way that meat eating is not immediately subjected to ethical scrutiny. Thus, by embracing an intersectionality perspective that begins with worker and community rights, as well as environmental impacts, the problem is not initially an animal rights issue couched in the ethics or morality of meat eating, but one that instead impacts people along lines of race and class as well as the environments and ecosystems they depend on. This approach not only has the potential to overcome some of the barriers of the meat paradox, but also might foster a more sophisticated and nuanced understanding of food systems, including how they operate along the lines of class, race, and species, as well as cause significant environmental damage.

Limitations and Further Research

Students enrolled in my course generally understand that workers and animals are marginalized in industrialized agriculture (and even on humane farms), yet their understandings appear to be limited in key ways. First, few students specifically discuss racial or class injustices in their classwork or post-course interviews. That is, they recognize that workers labor under deplorable conditions, but they do not necessarily unpack the racialized and classist dimensions of food production. Several possible explanations for this finding exist. First, they might "get it" but not discuss it in their coursework because the assignments I created do not specifically ask them to articulate these aspects of food production, an aspect of my pedagogical practice that I have now modified. I now more explicitly include class activities related to unpacking the racialized dimensions of food production and consumption such as having students analyze how Google search images for "food deserts" and "food swamps" can reinforce racism, classism, sexism, sizeism, and/or speciesism. Second, drawing on decades of critical scholarship in educational studies describing the "hidden curriculum of schooling" it could also be that they have implicitly been taught to downplay or even ignore the significance of their own race and class in socioecological systems (Anyon, 1980; Bowles & Gintis, 1976). They may also feel a certain level of discomfort discussing or writing about these issues with their White professor.

And finally, although many students discussed how the course benefitted them personally in various ways, not all modified their daily practices like Shelly and Lisa. As I discuss elsewhere (Lloro-Bidart, 2018a), Marie, the student featured in the second opening excerpt, noted that she wanted her family to make changes in their small business, but she felt it would be economically infeasible to do so. Marie, who self-identifies as Chinese-American, helps her parents operate a small mobile eatery that mostly sells chicken and fish plates at local farmers markets. As a self-described animal lover and someone committed to social justice, Marie would prefer that her family purchase more humanely raised chickens produced by fairly treated workers, but insists they simply cannot afford it. After doing extensive research into the companies that supply the chicken to her family's business and learning that they engage in deplorable practices that harm animals and people, she somberly concludes in her final autoethnographic essay,

> My family isn't rich and we are barely getting by. We have a house full of 11 people. The bills are very high. We are still paying off debts from our other failed restaurant businesses. We switched to farmers markets because there is a lot less overhead…My family and I have to make the selfish decision of taking advantage of the exploitation of workers and animals. In the free market of America, it's the only way for us to survive.

Marie's case thus illustrates that there are complex barriers to enacting changes at multiples scales (e.g., individual, business practice, neoliberal capitalism), which must be critically addressed in any interspecies CFSE.

In conclusion, I have drawn on ethnographic data to explore how interdisciplinary pedagogies that embrace an intersectional approach might provide students with the skills necessary to adopt interspecies food justice perspectives. As the cases of Shelly, Lisa, and Marie highlight, some students significantly changed some of their views of global and local food systems, recognizing the complex ways in which animal, environmental, and human oppressions intersect. Further, because of their experiences in the course, some students felt compelled to make personal behavioral changes they feel better align with their own commitments to justice. Yet not all students experienced such significant epistemological, ontological, and ethical transformations for a variety of reasons. As I discuss elsewhere (Lloro-Bidart, 2018b), some noted that purchasing Fair Trade or organic food is too costly, some remained attached to certain foods due to taste preferences or cultural significance, and others noted that they did not know what to do and if they could make a difference. Therefore, further research is needed to investigate how different populations of students respond to and learn from explicitly intersectional pedagogies, particularly those working toward transformative socioecological change.

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PART II

Posthumanism

CHAPTER 5

Mutual Becomings? In Search of an Ethical Pedagogic Space in Human-Horse Relationships

Reingard Spannring

> Horses can with their hoofs tread on the hoarfrost and snow, and with their hair withstand the wind and cold; they feed on the grass and drink water; they prance with their legs and leap: this is the true nature of horses. Though there were made for them grand towers and large dormitories, they would prefer not to use them. But when Bo-le (arose and) said, 'I know well how to manage horses,' (men proceeded) to singe and mark them, to clip their hair, to pare their hoofs, to halter their heads, to bridle them and hobble them, and to confine them in stables and corrals. (When subjected to this treatment), two or three in every ten of them died. (Men proceeded further) to subject them to hunger and thirst, to gallop them and race them, and to make them go together in regular order. In front were the evils of the bit and ornamented breastbands, and behind were the terrors of the whip and switch. (When so treated), more than half of them died. And yet age after age men have praised Bo-le, saying, 'He knew well how to manage horses.' This is just the error committed by the governors of the world. (Zhuangzi (about 365–290 BC), chapter on "Horses Hoofs" (Outer chapters))

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Introduction: Human-Horse Naturecultures

For thousands of years, the perception of the horse has been deeply infused with anthropocentrism. The earliest suggestion of the domestication of the horse, *Equus cabbalus*, in the Eurasian steppes emerges after 4800 BCE. Archeological findings suggest that humans developed mounted herd-driving methods that allowed them to kill whole herds of horses. Horse riding led to an increased scale and efficiency of productivity, the accumulation of animal wealth, and greater disparities in prosperity and power, and—together with horse-drawn wagons and chariots—greater mobility. Thus, the domestication and use of the horse transformed Eurasia "from a series of unconnected cultures into a single interacting system" (Anthony, 2010, p. 459).[1] We can only speculate what the process of domestication meant for the horses. The quote from the early Daoist Zhuangzi above, who wrote two millennia later, might give an indication.

In contemporary Europe, horses are still an integral part of life, although their role has largely changed. Horses are mainly kept for sport and leisure, and as companions. They are also used for therapeutic and pedagogic work, meat production, and in semi-subsistence farming. The economic impact of the equine sector can be enormous and has particular significance in rural areas. The equestrian sports industry alone creates five jobs per horse and a business volume of around €34 billion in Europe (World Horse Welfare & Eurogroup for Animals, 2015, p. 16).[2] A wide range of businesses benefit directly or indirectly, such as riding equipment, clothing manufacturers and retailers, farriers, veterinarians, consultancies, construction of facilities (stables, arenas), stable equipment providers, livery yards, feed production, pharmaceutical companies, transporter, education and training providers, trailer and horsebox manufacturers, breeders and dealers, betting industry, and entertainment and hospitality industry (World Horse Welfare & Eurogroup for Animals, 2015, p. 20).

The European equine health and welfare report points to persistent welfare problems. These include issues concerning how the horses are kept, such as lack of space, and long periods of confinement without access to turnout and social interaction. Equally problematic are neglect, and lack of knowledge of, and access to, proper equine care and training and

[1] For more general analyses of the role of livestock in Western history, see De John Anderson (2006) and Nibert (2013).

[2] Austria, Belgium, France, Great Britain, Germany, Ireland, the Netherlands, Spain, Sweden, and Switzerland.

handling methods for horses used in sport, in agriculture, and as pets. Finally, there are welfare crises with respect to the use of horses for meat and the treatment of working horses (World Horse Welfare & Eurogroup for Animals, 2015, p. 8). Horses thus assume a liminal position between contradictory categories of use and different locations in the nature-culture matrix. These shifting boundaries between the wild, the beloved, and (ab)used, and the "rewilded" animal present further ethical problems (Gamborg, Gremmen, Christiansen, & Sandoe, 2010).[3]

"Love" for the horse is ambivalent. On the one hand, the horse's existence as conscripted participant in equestrian sports is ubiquitous and the frequent abuse of the horse as sports utility vehicle is a tolerated feature of modern society. On the other hand, leisure riders and hobby breeders increasingly keep horses for pure companionship. Although concepts of equine welfare are somewhat divergent and contradictory (Birke, 2007), there is a shared tendency to empathically interpret and understand the horse as a sentient being and, often, an intentional subject (Brandt, 2004; Schuurman, 2015). There is also a discernible trend of keeping them as "naturally" as possible (e.g. within a herd, in fields for grazing, no shoeing) (Birke, 2007) as well as a shared focus on communication and improvement of human-horse relationships as principles for horse training and welfare (Savvides, 2012). Yet, despite the increasingly common discourse of and longing for bidirectionally cooperative and enjoyable human-horse relationships, anthropocentric motivations and practices still dominate (De Giorgio & De Giorgio-Schoorl, 2013). This begs the question: what does "mutual becoming" actually mean in human-horse relationships and where might a "nomadic ethics" that foregrounds "wandering with others *and* forming nourishing alliances" take us (Fawcett, 2009, p. 235)?

This chapter thus critically discusses the application of the notions of "mutual becoming" (Haraway, 2008) and "becoming animal" (Deleuze & Guattari, 2002) in the literature on human-horse relationship in the context of a posthumanist philosophy of education. It further proposes an alternative approach based on zooethnography and presents an auto-ethnography of my own search process for a non-anthropocentric space in which the horse's subjectivity becomes felt and I become "response-able" (Buber, 1996). Rewilding has its own ethical problems (Bekoff, 2000; Gamborg et al., 2010; Zukosky, 2016) and does not necessarily lead to non-objectifying, non-anthropocentric, and non-commercialized

[3] For example, www.rewildingeurope.com

human-animal relationships (e.g. Russell, 1995; Russell & Hodson, 2002). I therefore suggest a deterritorialization of human-horse relationships, that is, a transgression of culturally predetermined uses of and approaches to horses that allows for a rewilded space for both human and horse becomings. Finally, I draw out the implications of this alternative approach for education more broadly, but especially for environmental education.

Posthumanist Musings on Human-Animal Relationships and Education

Posthumanism has highlighted the complex and ambivalent interdependence and co-evolution of human and nonhuman animals. It asks how "human and animal subjectivities and corporealities are produced within a nature-culture dichotomy/collapse/symbiosis" (Pedersen, 2010, p. 242). This blurring of boundaries between human/animal and nature/culture questions the ontological, epistemological, and ethical assumptions underlying notions of "human nature" and "humanist education." In combination with a critical stance that not only "turns away from narrowly human political concerns" (Snaza & Weaver, 2014, p. 7) but also acts on the acknowledgment of the violence against and exploitation of the nonhuman, posthumanism has the potential to unsettle the dominant humanist discourses of education through a counterhegemonic movement (Carlson, 2014, pp. ix–xiv). For some academics, such an approach is indeed explicitly anti-speciesist and liberating (e.g. Best, 2005; Rossini, 2006), while for others the description of human-nonhuman assemblages, intertwinings, evolving dialectics, and mutual becomings is an end in itself. However, the latter tends to lose sight of the deeply troubling phenomena of nature destruction, species extinction, anthropogenic climate change, and animal exploitation (Pedersen, 2013; Pickering, 2005). Only few contributions in the field of environmental education research deal with the question of how power relations are constructed and maintained through "species performativity" (Birke, Bryld, & Lykke, 2004) in concrete contexts. For example, Lloro-Bidart (2014) has analyzed the neoliberal disciplining of human and avian bodies at the Aquarium of the Pacific; Warkentin (2011) unpacked the scripting and staging of human-animal relationship in swim-with-dolphin programs; and Russell (1995) explored the social construction of orangutans in ecotourism. Yet there is no environmental education research literature specifically focused on human-horse relations. In the

following section, I therefore review the academic literature in other fields on "mutual becoming" in human-horse relationships, with an emphasis on underlying anthropocentric power relations.

Becoming Horse

Some academics see human-horse relations through the lens of dominance and exploitation (e.g. Ingold, 2000). Others primarily focus on the "mutual cross-species embodiment of movement" of horse and rider, though they do not deny the abuse of horses. This movement takes the form of a dance or a centaur (Game, 2001) within human-horse relationships that is "dynamic, complex, mutual, co-created, bidirectionally cooperative, and perhaps transcendently pleasurable for both parties" (Argent, 2012, p. 123). These scholars, often "horse people" themselves, and their informants report non-verbal communication, as well as intense feelings of connection and oneness. "Mutual becomings" and "becoming horse" (e.g. Birke & Parisi, 1999; Maurstad, Davis, & Cowles, 2013) are achievable when the rider's and the horse's skills are deepened and polished over many years (Birke, 2009, p. 28). In the descriptions of his own experience of "becoming horse," Smith explicitly draws on Deleuze and Guattari's (1977) notion of becoming animal:

> Becoming horse, becoming animal, all becomings are bodily comings and goings. The common denominator is *movement* rather than the *body* per se. Becoming horse for the trainer puts actions of leading, lunging, and riding in two-sided connection with the actions of following, circling, going forward, moving off the leg, collecting, and contacting. The reciprocity of such actions is the intersomatic inter-action between trainer and horse in a zone of proximity. (Smith, 2011, p. 17; original emphasis)

However, "becoming horse" unambiguously takes place in a human space, which is framed by human economic and social infrastructure, as well as human beliefs about horses and human aims and desires. Not unlike Warkentin's (2011) scripted and staged human-dolphin encounters in aquariums, the equestrian world prescribes the appropriate forms that human-horse becomings take, whether in dressage, jumping, reining, or any other discipline. It "*requires years of training*" to produce a horse that responds on cue to the rider's aids, and the aim is "*total mastery of the horse*" (Loch, 1990, p. 183; emphasis added). This discourse in the

literature assures us that "control and domination need not be oppressive, subjugative, or coercive" and that in the moment of connectivity, the one-sidedness of communication is replaced by mutuality (Smith, 2011, p. 10f). Nevertheless, it stresses the necessity of dominance if anything "*meaningful*" is to occur (Hempfling, 2001, p. 29) and the *obligations* horses (and other companion animals) supposedly have toward humans (e.g. Haraway, 2008).

The words in italics bespeak the deeply anthropocentric purpose, namely the goal to form an animal that serves human interests, desires, and images. Such an approach cannot be separated from deeply troubling welfare issues, as the above-mentioned moment of mutuality all too often never occurs at all and, quite to the contrary, human violence escalates in the form of abuse, neglect, and euthanasia. It also underplays the physical and psychological damage that the horses suffer as their humans indulge in their zest and ambitions (World Horse Welfare & Eurogroup for Animals, 2015). Further, training itself is not innocent even in its enlightened form of positive reinforcement and socialization, since operant conditioning has severe physical and psychological impacts on the horse. The linear and mechanical method of calling forth or eliminating certain horse behavior restricts and damages his aptitude to "express himself and his cognitive ability to create his own understanding of a given situation" and to respond appropriately (De Giorgio & De Giorgio-Schoorl, 2013, p. 103).

In fact, these practices violate a number of principles for a posthumanist philosophy of education. In order to highlight these contradictions, I draw on Buber's (1996) a-humanist pedagogy (Spannring, 2015) and the early Daoist philosophy of Zhuangzi (Hung, 2015), quoted at the beginning of this chapter. Both philosophers emphasize relationship and responsibility—an understanding that is shared in the more recent posthumanist discourse, which questions the role of humans as the "lords over our dominion" (Weaver, 2014, p. 191).

Posthumanist Education and the Ethics of Becoming

The posthumanist challenge in the philosophy of education focuses on a critique of the subject-object dualism, and the dominance of pedagogic requirements, measures, and plans. Instead, posthumanism foregrounds relationship and a self-becoming that implies permanent self-deconstruction.

The *subject-object dualism* in humanistic education suggests that all nonhuman beings serve human formation and self-development as

content, matter, material, and means of education. The use of the horse in animal-assisted therapeutic and pedagogic settings is an obvious case in which the horse becomes material and means for human developmental or educational purposes. Horses are even seen as a "powerful instrument" to refine managers' "sense of confidence, develop their natural instinct for leadership, and perform more effectively in their professional domains" (Maziere & Gunnlaugson, 2015, p. 1).

In such a use-oriented context, learning processes are assumed to be plannable and methods universally applicable. *Method* then degenerates to training, drill, and operationalization with the aim of total control, guarantee of success, and repeatability. The multinational equestrian industry visibilizes this approach. Clinics and teaching resources yield great profits in sophisticated franchise systems of star trainers such as Pat Parelli, Monty Roberts, and others, while horses become standardized service providers in the form of the perfect dressage or reining horse or the reliable therapy horse.

However, as Buber reminds us, the inclusion of the Other in such a cycle of means and use leads to alienation because nobody experiences the Other as herself any more, but only the fulfillment of a task, be it a certificate, a position, status, or the development of a competence. The posthumanist antithesis argues for the Others' liberation from relations of uses and aims, for the liberation of their selves, their particularities, and intrinsic value. To liberate the Other means that the Other can make herself felt in an undistorted way. Such a pedagogy confirms *the Other's specific capabilities and essence*, speaks to a dimension of self-becoming, and transcends curricular and methodological measures (Spannring, 2015).

In the equestrian world, the self-becoming of the horse is not feasible. Subjected to the methodological measures that ensure compliance with human requirements, the essence of the horse as a cognitive and social animal remains unrealized (De Giorgio & De Giorgio-Schoorl, 2013). Therefore, the liberation of the Other and the opening of a pedagogical space, in which both human and horse can learn, presupposes a process of *self-deconstruction* on the part of the human. According to Buber and Zhuangzi, this implies an ongoing questioning and renewing of the subject (Buber, 1996; Hung, 2015). The "subject to come" could never be one who accomplishes and satisfies through coercive, purposeful, or calculated action. Rather, relinquishing the desire to forcibly "humanize" and coerce the nonhuman into a social order (Hung, 2015, p. 430f), the human "subject to come" opens and empties his/her mind to the nonhuman Other and creates the possibility for the nonhuman's subjectivity and agency.

The process of (mutual) becoming therefore entails spreading one's attention to the richness of subjectivity and intersubjectivity, as well as the complexity and dynamic of relationship. It further requires a process of "deterritorialization" (Deleuze & Guattari, 1977), that is, the move beyond culturally predetermined meanings, relations, and practices. For Deleuze and Guattari "deterritorialized flows of desire" can break up the static relations and practices of capitalism, the individual's own interior repression and the oppression of other beings and entities (Rotas, 2015, p. 97). In the context of this chapter, I argue for the deterritorialization of the equestrian paradigm, which—framed by capitalist and anthropocentric production and consumption of equine bodies—establishes the use and training of horses as unquestionable reality and necessity.

Deterritorialization and Mutual Becoming

Deterritorialization, however, is not an easy and straightforward process, nor does it necessarily follow from the "fluidity and the interchangeability of humans and animals in friendship, companionship and love" (Franklin, 1999, p. 5). For myself, stepping outside the equestrian paradigm involved a protracted period of searching for an alignment between my animal rights position and vegan lifestyle on the one hand, and my relationship with my horse, Freja, on the other hand. With a plan of "doing" multispecies ethnography (Kirksey & Helmreich, 2010; Ogden, Hall, & Tanita, 2013), I was eventually led to a study program in cognitive horse ethology, which has facilitated a transformative learning process.[4] In the following section, I illustrate the beginnings of my deterritorialization based on an autoethnography and then present the zooanthropological approach as a frame of reference.

Autoethnography

My first attempts in deterritorializing the equestrian paradigm and providing affiliative-cognitive space for a mutual becoming reveal many obstacles. The following vignette of a ride with Freja illustrates some of them:

[4] http://www.learning-animals.org/en. I wish to express my heartfelt gratitude to my human teachers José de Giorgio-Schoorl and Francesco de Giorgio and our equine teachers.

Fieldnotes
September 7, 2016

I put a saddle pad and a simple halter on her and get on. We start riding up a winding dirt road across an alpine pasture. I just sit on her quietly, observing her and giving her space to explore. Every now and then, she stops, cocks her hind leg, looks around and listens. I look back at the stable. We hear the other horses neighing. Freja pricks her ears but does not answer. Seemingly, a whole lot of time passes. Although I had left with the intention of following her decisions, I feel impatience coming up. I realize how much my normal activities with Freja are framed and organized by my own aims, meanings, energy, rhythm and time, my ideas. Freja moves on, stops, moves on again. Thoughts rush into my head. I hear a voice saying, "You should not let the horse decide what to do. You should be in charge." I shake off these thoughts and redirect my attention to our bodies. Freja picks up some speed. Further up the road she stops dead, her head high. Something is rustling in the trees. I feel her attentive tension. Eventually, a jaybird emerges and noisily flies off. Freja relaxes and resumes her walk. She catches up with my dog who has been running ahead of us. She comes to a halt behind him as he stops to sniff the ground. Her head is level with his body and she intently watches him as he examines a plant. After a long moment, she takes a step forward and gently nudges the dog with her nose to move on. We amble further up the road until we have arrived above the tree line, where another vast pasture opens up. Freja stops and looks. I see pictures of horses galloping across the plateau in front of my eyes. However, Freja turns round and starts to make her way back home. I slide off so that I can walk with her. As we get further down, Freja deliberately leaves the road and walks over to some thistles. Very carefully, she curls back her lips to take them with her teeth and chew them. I experimentally touch the prickly plants and observe how Freja chooses some thistles and leaves others. I am completely immersed in this experience with Freja. Only after a while, I sort of surface and feel that it is getting cold. I ask Freja to come with me and we briskly walk back toward the stable. Now lots of thoughts and feelings surge back: I revel in these shared moments. I start questioning the meaning of my riding lessons for Freja and our relationship. I worry about what my friends would say if I stopped participating in our equestrian activities. I engage in futile attempts to foresee and even plan my new future with Freja.

After many months I have deterritorialized much of my equestrian thinking: I have moved beyond and against the fixed concepts of who horses are and what horse-human relationships should be like. I have decentered myself as the only subject giving meaning and form to my encounters with Freja. I have become more adept at taking on Freja's timing and rhythm,

focusing on situations and dynamics that are interesting for her, and sharing experience. Finally, I have become less worried by the deterritorialization of my hitherto secure knowledge of the horse world and more comfortable with the open-ended process of becoming.

I am also more aware of how my own position and movement enables or inhibits Freja's space to ask questions, solve problems, and create herd dynamics. One example is an encounter with an umbrella lying in the riding arena, an object that scares Freja. I slowly walk toward the umbrella in a non-linear way, stopping a number of times, to give Freja the opportunity to observe from different points and in her own time. As I come to stand close to the umbrella, look at it, touch and move it, Freja stops two or three steps behind me and observes me. I think that she is still too anxious to approach it, but as I get up and take a step back, she steps forward to nuzzle the umbrella. Another example for opening space concerns the dynamic between Freja, a pushy yearling, and two other horses. Freja approaches me to stand quietly with me. After a while, the yearling squeezes in between Freja and me and starts nibbling at Freja. I back off. Freja steps into this opening and walks away to the other end of the paddock. The yearling and the other horses follow her. As they all stand there, Freja breaks through the little group and comes back. She resumes her position next to me, nuzzles me a little bit, and relaxes.

Beyond the fixed meanings and practices of the equestrian paradigm, Freja and I can thus become the "subjects to come" mentioned above who open and empty their mind to the other and create the "possibility of agency." Freja has already become more relaxed, investigative, and proactive. I am learning to understand her experiences, and how to fit into her world as a response-able member of her community. Our mutual becoming has only just started.

Zooanthropology

The frame of reference for my learning process and mutual becoming with Freja is zooanthropology, a multidisciplinary field that studies the (development of) relationship between human and nonhuman animals. With its decentering of the human, the focus on the animal Other and on relationality as the basis for mutual development, co-learning, and wellbeing, zooanthropology can be said to represent a posthumanist approach (De Giorgio & De Giorgio-Schoorl, 2013, p. 53). The affiliative-cognitive paradigm of

zooanthropology starts from the horse's abilities and possibilities to build (latent) learning experiences himself within a rich socio-cognitive context and living environment, both in his relationship with other horses as in his relationship with humans (De Giorgio & De Giorgio-Schoorl, 2013, p. 55). Cognition implies an innate ability but also the horse's need to understand and elaborate on his environment and the social dynamics of which he is a part. Exploring, social learning, and communicating his experiences is an ongoing activity that takes place as he forages and moves with others, stands together in affiliative moments, and observes others (De Giorgio & De Giorgio-Schoorl, 2013, p. 34).

A lack of fulfillment of these needs causes mental, emotional, and physical tension and greatly diminishes the horse's welfare and wellbeing. In the equestrian world, this is often the case, since the horses are kept in a context in which the socio-cognitive affordances are greatly impoverished. They are further asked to fulfill human purposes within a stimulus-response scheme, without getting the chance to explore, process information, and understand a situation in their time and way. Instead of providing space for problem-solving and decision-making, and generally preserving cognition, horses are driven to disconnect from themselves and their environment to blindly react to stimuli. Reactive experiences are called forth, for example, by social isolation, human performance expectations, behavioristic training, the use of bits and spurs, as well as lack of opportunities for equine exploration and self-expression (De Giorgio & De Giorgio-Schoorl, 2013, p. 38).

Safeguarding the horse's affiliative-cognitive abilities and needs implies ensuring that the horse can maintain awareness of his body, sensations, and inner states and allowing him to express his attention, curiosity, and motivation in his relationship with equine, human, and other companions. Such an aim not only enables equine learning but also evokes human learning processes: learning about equine affiliative behavior, learning to share experiences, and developing a relationship without projecting our need of predetermined activities and performances of the horse (De Giorgio & De Giorgio-Schoorl, 2013, p. 60f).

Afterword: Rewilded Space for Mutual Becoming

Some authors have described their posthumanist movements to liberate wild animal Others. Smuts (2001) transgresses her role as a supposedly "objective" researcher using animals as "research objects" to blend in with

a troupe of wild baboons by learning their behavior and language. Stewart (2011) assumes the "minoritarian" position of the speckled warbler in order to feel and understand the "complex relationships between a given species, its habitat, the land use pressures that shape its long-term survival, and questioning cultural assumptions about how we conceive of and use the natural world" (p. 76). There is no reason why we could or should not liberate the horse. Indeed, such an approach dissolves the dichotomy between wild and domesticated. All species, wild and domesticated, need an environment in which they can thrive not only physically but also socio-cognitively and emotionally.

Such a liberation of the animal Other presupposes a "rewilding" of our human mindset. It implies "appreciating, respecting, and accepting other beings […] for who or what they are, not for who or what we want them to be" (Bekoff, 2014, p. 13). The deterritorialization of anthropocentrism and speciesism is first and foremost an intimately personal process, which—often painfully—challenges our projections, desires, and deeply ingrained habits and beliefs. Second, it implies a political process, which reveals and critiques the structural interconnections of violence against different categories of nonhuman animals, their habitats, and nature more generally. Third, it calls for a rewilding of research. The reminder of cognitive ethologist Bekoff to listen more closely to what nonhuman animals need (Bekoff, 2014, p. 59) is also valid for the social sciences and humanities. As this and other analyses (Kopnina, 2017; Lloro-Bidart, 2018) have shown, neither "posthumanism" nor "multispecies ethnography" are per se non-anthropocentric, anti-speciesist approaches to naturecultures. However, in environmental education and education more generally, processes of deterritorialization drawing on critical animal studies, critical (feminist) posthumanist theory and critical pedagogy (e.g. Andrzejewski, Pedersen, & Wicklund, 2009; Bell & Russell, 2000; Corman & Vandrovcová, 2014; Pedersen, 2010) have begun. Certainly, more time and effort must be invested to develop a robust interdisciplinary methodological frame for bringing in nonhuman voices, subjectivity, and agency (e.g. Lloro-Bidart, 2018).

Fourth, and finally, rewilding involves a deepened understanding what "subjectivity" and "mutual becoming" outside the anthropocentric and speciesist paradigm might mean in actual practice. As I ponder on this question, I recall a recent adventure with Freja and two other horses.

Fieldnotes
June 8, 2017

I join the little herd as they forage in a large alpine pasture. Slowly moving with them, I observe how they balance their bodies on the steep mountainside by bending the joints of their uphill legs. I can feel my own body doing that, slightly leaning towards the mountainside, relaxing. I hear the rhythmic chewing and smell the scent of the torn grass blades. I get down on all four to explore the diversity of the grasses myself. I feel the warm, damp ground and find a pillow of wild thyme. I bury my face in it, smell its fragrance and let its tiny twigs touch my skin. I listen to the hooves approaching and suddenly feel Freja's lips exploring my hand. Without looking, I turn my hand to feel her soft nose. In the next moment, a screech draws our attention. The horses and I follow the sound in the sky. Two young buzzards are playing high above us.

I now realize that learning to recognize animal subjectivity and discovering my own animality has overruled my plan to "accomplish" a multispecies ethnography in a delightful way. Letting go of expectations, predetermined procedures, and results, preserving (human and nonhuman) subjectivity and ownership of learning processes, and allowing time for such a rewilded mutual becoming might be more important than any theory or method, both in research and in education. In fact, I think it is key to developing an ethical and sustainable way of living in a more-than-human world.

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CHAPTER 6

Co-mingling Kin: Exploring Histories of Uneasy Human-Animal Relations as Sites for Ecological Posthumanist Pedagogies

Karen Malone

Thinking Through Kin on a Damaged Planet

In September 2015, *Guardian* journalist Gaia Vince described human impact on the planet in the following way:

> We are an incredible force of nature. Humans have the power to heat the planet further or to cool it right down, to eliminate species and to engineer entirely new ones, to re-sculpt the terrestrial surface and to determine its biology. No part of this planet is untouched by human influence—we have transcended natural cycles, altering physical, chemical and biological processes. (Gaia Vince, The Guardian, September 2015)

While the term 'Anthropocene' (the epoch of the hu/man) has been accepted in the discipline of geology, there remains much debate about

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where the boundaries lie that would mark the arrival of this new epoch (Vince, 2014). Was it the Industrial Revolution in the eighteenth century or the "great acceleration" of the mid-twentieth century, with its increasing population growth, carbon emissions, biodiversity loss, plastic production, and start of the nuclear age? (Davies, 2016). The Anthropocene as used in my research is more than this, more than a timeline of human degradation or techno-positivist hubris. The Anthropocene reveals beyond the damage that there is no homogenous human race and that this scale of ecological impact is unequal, unethical, and unjust; the poor, the children, and the nonhuman are more in it than the wealthy (Crist 2013).

The Anthropocene as a rupturing force brings our attention to humans who are neither exempt from the ecological world nor exceptional to those they are acting/being/dying in relation with. As an unsettling ontology, it disrupts a persistent "humanist" paradigm in disciplines such as education by allowing new conversations to emerge around human-dominated global change, human exceptionalism, and the nature-culture divide (Lloro-Bidart, 2015). This chapter explores alternatives to dominant humanist environmental education pedagogies by drawing on a range of theorists. I thus adapt Haraway's (2016) notion of kin and 'being worldly with,' Smith's (2013) 'posthumanist ecological communities,' and extend Luc-Nancy's (1991, 1997) theorizing of 'sensing with bodies.' With a focus on multispecies kin as ghostly traces in our past, present, and future, the potential of posthumanist ecological narratives is enmeshed in uneasy human-nonhuman relations within the everyday lives of animals in cities. This theorizing transcends and promotes a transformative potential of environmental education and supports a case for the role of ghostly tracings and sensing ecologically as tools for new multispecies pedagogical practices.

I argue that a posthumanist pedagogy of environmental education, located in multispecies theorizing, has a significant role to play in revealing the field of its humancentric (his) story. The naming of the Anthropocene presents the opportunity for galvanizing already emergent forms of thinking and acting across a range of disciplines within and beyond education. Changing the entrenched habits of modern Western humanist thought in education, which is so adept at dividing humans off from nature, requires persistence, vigilance, and a preparedness to take risks. It is hard work. It demands continually interrogating what it means to be human, to find ways to resituate humans firmly within the environment, and to locate the environment within the ethical domains of a (pre-) posthumanist landscape. I have felt a compelling call to reconfigure my old practices and pedagogies in environmental education.

As an unsettling ontology that disrupts a persistent humanist paradigm, the concept of the Anthropocene allows new conversations around human-dominated global change, human exceptionalism, and the nature-culture divide. I view the concept of the Anthropocene as a discursive development that problematizes a human narrative of progress that has essentially focused on the mastery of nature, domination of the biosphere, and placing God-like faith in technocratic solutions rather than a set of scientific facts. In this way I see it being employed as a heuristic device for gaining a greater understanding of the role of human societies, the part they have played in changing the planet, and the implications of this on what it means to be human, as well as what it means to be in relation with a nonhuman world impacted by the consequences of those changes (Plumwood, 2002).

The five **Ghostly kin**-threaded narratives that follow in this chapter present Indigenous and present-day stories. The passages trace an Indigenous and historic-species connection of the brushtail possum to the country and represent an affective moment of a rekindling multispecies relations between dog-possum in the urban setting of my small terrace house in inner city Melbourne.

Ghostly Kin #1
In his biography of ancient Australia, Eric Rolls suggests species like brushtail possums were prevalent in southeast Australia appearing during the early-mid Miocene, with the oldest known fossils being 23–26 million years old. Aboriginals, the oldest living human culture arrived in Australian sometime around 65,000 years ago. Brushtail possums or Trichosurus vulpecular (taken from the Latin *little fox*) *are one of the most common possum species in the city where I live.*

While you were away she came to visit. I hadn't noticed she was there until I turned on the outside light. She had come right up to the back door, face pressed against glass looking in. I imagined it was a puzzled look. Why hadn't you come outside as usual? She didn't stay once she saw me at the door. She quickly retreated and jumped on to the outdoor table. From there she stopped and looked back at me. For a short moment our stares locked, her large brown eyes were glistening in the light. Then without notice she turned, and was gone into the night. I paused for a moment to trace her ghostly memory in the darkness.

The city is a haunted landscape—a site where past and present human-nonhuman kin co-exist, co-mingle. It is a story of 'being worldly with' (Haraway, 2016) nonhuman kin in a landscape imbued with a fading past traced onto present and imagined futures.

> As humans reshape the landscape we forget what was there before … our newly shaped and ruined landscapes become the new reality. Admiring one landscape and its biological entanglements often entails forgetting many others. (Gan, Tsing, Swanson, & Bubandt, 2017, p. G6)

Within urban landscapes, many of which are the sites of environmental education, ghosts remind us of the traces of a recent history, a ruptured past, and a past deeply sculptured in the granite of time. Ghosts reveal the histories of when different kin existed alongside others, where these assemblages of human-nonhuman bodies came together, only to be lost, to become extinct. There were stories of survival, some found ways to co-exist, adapt alongside and with humans on these damaged landscapes. As Gan et al. note:

> To track histories that make multispecies livability possible, it is not enough to watch lively bodies. Instead we must wander through landscapes, where assemblages of the dead gather together with the living. (2017, p. G5)

Thus, ghosts in the landscape remind us that we have always been animal kin, we have met in our past, and *when species meet* again there is recognition (Haraway, 2008). Rautio reminds us that having landscapes *where* species can meet are "crucial to coincidental encounters between humans and other species" (2017b, p. 8). Whether in the backyards of my suburban home or high in the hilltops of La Paz where we meet "affects which species we can meet, if any at all, and how" (Rautio, 2017b, p. 8).

The purpose of, or to make, kin according to Haraway (2015) is to recognize this coming together of different entities who may not be tied purely by ancestry or genealogy. She argues the stretch and re-composition of kin represents the understanding that Earthlings are all kin in the deepest sense—kin become the purest of entities in assemblages of the nonhuman, and by the fact that "it is past time to practice better care of kinds-as-assemblages" (Haraway, 2015, p. 162). Posthumanist ecological pedagogies embrace kin relations as a revered deep sensitivity and interdependence with others' pasts and presents. Similarities/differences are transformed as the sharing of assemblages of thinking through and being traced as kin on the damaged landscape, as Smith highlights:

> what appears to human beings is not all that appears, that what affects human beings directly is not all that has effects, that what has significance in its appearance to and effects on human beings has different significance for other beings. (2013, p. 24)

Ghostly Kin #2
My house is built on the country of Yalukut William clan of the Boon Wurrung First People. Boon Wurrung tradition states the land is protected by the creator Bunjil who travels as an eagle and Waarn who protects the waterways and travels as a crow. Bunjil teaches the Boon Wurrung all humans must obey the laws of Bunjil, and not to harm the children or the land of Bunjil. This commitment was made through the simple exchange of a small bough, dipped in the water. The Janganpa jukurrpa (brush tail possum) travels all over country.

I traced your kin relation from the moment we moved into our house. You sensed her, smelt her presence, you revealed to me the evidence of her nightly visits, but for many weeks she was just a ghost in our lives. That first night I remember your insistence to go outside when the sun had set, and even though I called you in for your dinner, you wanted to stay out there. You sat staring into the darkness for hours. In a strange ritual that we now play most nights, you would come to the closed back door as if you wanted to come in and then when I opened it you would run away into the darkness again. I would see your body outlined in the shadows. Still, waiting.

Being Animal, Sensing Bodies

How does being nature change what it means to be human? The theory of ecological posthumanism I am exploring in my educational work contests the arrogance of anthropocentric/humanist approaches by enabling a shared sense of a collective common world. Andersen states this focus on "challenging the idea that humans occupy a separate and privileged place among other beings has been the central goal of [the] post-humanist agenda," with critical posthumanists taking on the task of challenging well-established humanist discourses that "separate[s] and elevate[s] humans from the natural world" (2014, p. 3) Posthumanism, according to Barad "doesn't presume the separateness of any-'thing,' let alone the alleged spatial, ontological, and epistemological distinction that sets humans apart" (2007, p. 136). Posthumanism contests a human-nature dualism that not only strips humans of all of their own natural dimensions—that we are an animal and part of nature—but also installs the idea that other nonhuman animals and things are not comparable to humans—they don't have emotions and attachments, and aren't comparable to humans (Bell & Russell, 2000; Russell, 2005; Russell & Fawcett, 2013). Humans are politicized as Earthly masters, superior beings. According to Smith the posthumanist perspective takes seriously the need to stop "the

anthropological machine, the constant production of absolute dividing lines between humans and the rest of the natural world" (2013, p. 24), while also being attentive to the limitations of humanism.

A posthumanist approach to animals in environmental education questions the ontological and epistemological assumptions informing the human-nonhuman divide where "human and animal subjectivities and corporealities are produced within a nature-culture dichotomy/collapse/symbiosis" (Pedersen, 2010, p. 242). Recognizing the fragility of limiting a collapse between the categories of human-nonhuman and nature-culture is to recognize the means through which exceptionalism as a human condition continues to act out in the everyday lives of being with other species, including the ethical decisions humans make when positioning themselves as superior to all living things.

Urban wildlife can sometimes be messily entangled and, in cases such as crocodiles in Australia or bears in Alaska, genuinely dangerous, but for the most part, these unexpected encounters with other nonhuman animals living among us are a reminder that we are not alone and that our cities are far from sterile or un-natured. When exploring multispecies cohabitation in classrooms I believe we need to move away from the idea that cities/urban environments are barren, anti-nature zones. This environment we've built, this urban biome, is teeming with life, but all too often we just blank it out. For instance I heard a colleague speaking about taking children on excursion to the zoo as part of outdoor learning. She commented, "It is critical that children have a chance to go to the zoo. For many of them, it's the first time they've ever seen a wild animal." I felt like saying, "But that's not true!" Most children living in Australian urban landscapes are living with possums (a wild animal they are trying to keep out of the local zoo), kangaroos, mice, rats, seagulls, pigeons, crows, flying foxes, penguins, and dolphins, including other urban-dwelling pets who share our homes. It made me thus wonder: Are urban humans so attuned to these nonhuman animals 'being in' landscapes with us that we no longer view them as wild or free? And are these nonhuman animals we live within our everyday lives wilder, than the giraffe in the zoo or the cow in the paddock? Can they carry the assemblages of human-nonhuman bodies as tracings in their history on these landscapes I live?

With a lens of a posthumanist ecological community these urban encounters are social, historical, and cultural; nonhuman animals are no longer directed by and respond to the interactions of the present human

but are understood as subjects in their own right who have exercised agency over millions of years of evolution and who have for the most part learned to live well with humans. Urban animal adapters typically include many species often referred to as edge species, those who have adapted to forest edges and surrounding open green space close to the city (McKinney, 2002). Many bird species take advantage of suburban habitats, lawns, and ornamental plant ecosystems that provide a rich source of plant foods and a high abundance of flying insects, especially those that are attracted to artificial lights of city nightscapes. For many animals that lack the high mobility of birds, living in cities can pose a range of challenges. Nevertheless, a diversity of urban kin live in permanent residence with humans in cities around the world, including a long list of animals such as dogs, cats (domesticated but also wild), rats, mice, foxes, possums, bats, raccoons, squirrels, and rabbits, along with the host of native and exotic birds. These nonhuman animals have adapted, and in many cases flourished, in the urban landscape by learning to live with and alongside their intruding human companions.

The valuable role of exploring human-nonhuman species relations in the urban landscapes as a means for educating humans about local biodiversity and conservation in cities has been recognized as useful. "Educating the urban public," writes McKinney after conducting an extensive study into species adaptation in cities around the globe "could be the most important method of promoting effective conservation of native species" (2006, p. 256). For children in the city these encounters with urban kin can be immensely revealing of the *plight of other animals* but also what it means to *co-mingle as animal with others.*

These multispecies co-habitations come with a sense of responsibility. When we are kin together we must share a sense of belonging and reciprocity for our human and nonhuman kin. Noticing is to be affected by the sameness and difference of our co-habitation with others, which provides opportunities for mutual reciprocity, care, and protection. By troubling the conceptions of distinct borders and divisions between humans and nonhumans, both human and nonhuman can be thought of as *performative mutually responsive agents.* Bear (2011) names this as *learning to be affected*. We are affected when touched by others.

Being in the world with others is to be in an ecological community with the animals and to be touched by them. Derrida (2002) argues (cited in Smith, 2013, p. 31):

> touching is not a sense, at least not one sense amongst others. A finite living being can live and survive without any other sense; and this occurs with a host of animals that have no vision (it is possible to be sensitive to light without "seeing"), no hearing (it is possible to be sensitive to sound waves without "hearing"), no taste or sense of smell … But no living being in the world can survive for an instant without touching, which is to say without being touched … for a finite being, before and beyond any concept of "sensibility," touching means "being in the world." There is no world without touching.

To be affected is to share love, pain, fear, grief, birth, death, and loss—we are no longer alone in our humanness, we are coming into being by being animal. From this place environmental education becomes something different.

Ghostly Kin #3
The Boon Wurrung people wore possum skin cloak from a young age. Aboriginal people used the possum skin cloaks as baby carriers, coverings at night, drums in ceremony and for burial. Starting out small, just a few skins sewn together, enough to wrap a newborn baby, skins were continually added over time, skins growing with humans. Sewn together with plat fibre or kangaroo sinew, incised with mussel shell or bone and painted with black wattle tree sap and ground ochre mixed together, the possum-skin-coat mapped their owners identity by holding stories of clan and Country.

I can see you now staring vigilantly up at the trees. Wondering if she will be there. You become impatient and run between the outdoor table and the day bed. Sitting on the cushions for just a minute, you desire a quiet calm but your whole body is quivering, giving away your excitement. The light flickers on, there is a rustle in leaves, you leap from the day bed and run to the fence. Staring into the darkness your eyes are fixated on a branch. Not any branch, the branch the joins our world with hers. Is that a shadow moving across the trunk of the tree? You attempt to sit still, quiet, but your body gives it away, the flow of energy makes it hard for you to settle your beating heart, to notice to pay attention. Your eyes are fixed on the branch. Waiting, always waiting for a glimpse of her ghostly stature.

Dog-Possum-Human Bodies

Dogs are remarkable animals. They are uniquely sensitive to the cultural attributes of the people with whom they live. Not only are dogs entangled in naturecultures, they also participate in human cultures. The co-evolution of kin species over different periods in time, as with dogs (who have the

longest of evolutionary human and nonhuman animal relations dating back for at least 15,000 years), helps to extend the idea of assemblages of animals—human-nonhuman—being located in relational kin over thousands, sometimes millions, of years. Dogs as the first nonhuman animals to live with humans are still the only animals found in every human society around the world. Such is this complex history of human-nonhuman companionship; dog genetic diversity is often used as the means for tracing the history of the peopling of the new world. Because of their ubiquity across cultural boundaries, dogs have become so commonplace in human lives that the tracing of their own history is often overlooked. Yet what is perhaps most remarkable about dogs, particularly with respect to considering notions of the ecological community, is their adaptability to human needs.

In Bolivia, I have often walked the city streets with children and dogs who live in the higher reaches of the valley of La Paz. These children were descendants of the Quechua and Aymara people, the two largest Indigenous groups in Bolivia. Evo Morales, the current President of Bolivia, is of Aymaran descent, and as the first Indigenous leader, he has supported policies that enhance the opportunity for Indigenous communities to speak out and seek to live in harmony with Mother Earth. Pachamama beliefs view the relations of human-animal companions as dynamic. Humans who are guided in Pachamama are in relation with a spirit animal. According to these Pachamama beliefs, nature provides humans with a diverse set of spirit animals, sent as allies during the human journey on the planet. Central to this belief is that humans and nonhuman companions depend exclusively on what the Earth provides, and Mother Earth or Pachamama is the source of all life, human, nonhuman, soil, air, and water. Ancestral ceremonies, rituals, and offerings of animals to Pachamama are entwined with a profound sense of respect and gratefulness, as a sign of retribution and reciprocity. In line with this particular Indigenous cosmological and ontological stance, once a year people feed, bathe, and immunize street dogs, who appear to relish in this ancient reverence. Dogs in La Paz find solace in a shared life with children, who participate in the day's events.

> The complexity of the child-dog relations of La Paz challenges me to consider what 'living well together' with a host of species and histories might contribute to a common world. Living well with animals' means inhabiting their/our stories to try to reveal the complexity of those kin relationships. The work of theorizing multi-species relations through an ecological post-humanist lens draws me to consider a co-habitation of child-dog-bodies as an active history of body connectedness. (Malone, 2018, p. 187)

As I walked the streets of La Paz on my arrival day, a small dog started following me. I was smitten by both her sweetness and her familiarity. I took a photo and sent a message to my two daughters in Australia: "I found Poppy's South American cousin" (Malone, 2018, p. 173) (Figs. 6.1 and 6.2).

Unlike my dog Poppy, who sleeps in my bed and eats from my refrigerator, this street dog is engaged in a different set of relations with her human kin. Children tell me dogs in La Paz are free, and this freedom is understood as an ancient alliance connected to the Pachamama, According to the children she is free to do as she pleases as long as she doesn't get in the way. Described by them as neither pet, stray, or wild, she is loosely

Fig. 6.1 La Paz street dog. (Author's photograph)

Fig. 6.2 Poppy in my bed. (Author's photograph)

connected to a family, as she comes and goes and sometimes wanders into the small family yard, but she mainly lives on the city streets. Because her entanglement with humans is loosely tied together, she may go hungry, be abused, or die alone. Dogs in La Paz took us on walks; they foraged for food, barked at intruders, and played games in the playgrounds with child-dog bodies. As our 'spirit animals' they were our protectors and our guides. Sensing danger, we responded to their sensory cues. They alerted us to the precarity of the damaged landscape. As I note elsewhere, "These approaches," of walking with children and dogs in landscapes, "allowed me to imagine a view of agency not tied exclusively to humans. Nonhuman entities became more than simply *objects* being directed by humans, but as *subjects* in their own right, they were shaping an exchange and co-merging with children" (Malone, 2016, p. 49).

The child-dog intra-action on the streets of La Paz enticed spaces of mutual respect, care, learning, and protection. Karen, for example, a young girl from our research study in La Paz, described her relationship with Bicho as one where they assumed the reciprocal role of protector and being protected, "I have a dog. His name is Bicho and he takes care of me a lot. He protects me from other dogs. Sometimes I protect him" (Malone, 2018, p. 188). By being 'Throwntogether' and by learning to live well together, child-dog bodies are entwined, co-mingled on these streetscapes of La Paz. In my discussion of these encounters I wrote

> rather than thinking through the child's relations to dogs (nature) by elevating dogs to the status of the children, or de-elevating the child to the status of dog, a posthumanist reading of the child-dog in La Paz seeks to unpack political, ethical, and ontological questions without enforcing a traditional human-animal distinction. (Malone, 2016, p. 52)

Tracing ghosts through DNA reveals that 90 percent of dogs traveled to this land during the Spanish conquest. The gentry arrived with companion dogs—spaniels and poodles. Poppy is also a cocker spaniel, brought to Australian shores during the waves of post-invasion migration. Although they have never encountered one another they are a species in common, both affected by a shared history of being worldly with humans for thousands of years.

Ghostly Kin #4
During colonisation Aboriginal people were made to abandon their possum skin cloaks; many died because they were no longer protected from the elements. Lost was the warmth of skin touching skin. Victorian settler communities established a possum fur industry causing possum numbers to drop dramatically. In 1906, more than 4 million Australian possum pelts were sold in London and New York. As late as 1959, 107,000 brush tails in Victoria were killed for a fur industry.

As we enter the house you run straight to the back door. Barking, barking. I put the lead down and call to you. It is already dark outside. I try to distract you. Do you want dinner first before you go outside to greet her? Our nightly walks on the beach in the Summer had allowed us to watch the sun setting and be home before she came. But it is Winter now, there is no beach just a brisk walk around the park in the dark before the cold seeps into our bones. You run to cupboard where the food is kept but before I can open it you are at the back door again, wanting to be let out. The backlight comes on. You stare out into the darkness towards the tree, you sense she is there.

Conclusions

In a posthuman world, "We do not leave our history behind but rather, like snails, carry it around with us in the segmented and enculturated installations of our pasts we call our bodies" (Hayles, 2003, p. 137). Humans in the Anthropocene, like all nonhuman species, carry the material entanglement of their lives on their backs, in their biomes, and in their

stories. It is real and inscribed in the appropriation of what it means to co-habitate with other species, things, and matter in deep time, in present time, and when learning to consider a precarious future world. We are implicated in our existence on the planet through our multispecies companions and despite the human predilection to reiterate human exceptionalism, including within many epic and heroic narrations of the Anthropocene. Our human lives are totally dependent on the lives of others and yet ironically other lives are not dependent on us. If humans were to go extinct, other nonhuman entities would most likely to thrive.

To engage truly with the consequences of an anthropocentric paradigm shift, as environmental educators we will need to consider what the implications will be for all while living in this post-nature, damaged landscape. Firstly, I propose we ask ourselves what the onto-epistemological consequences of being inextricably entangled and co-mingled messily with human and nonhuman pasts and futures might be. That is, we ought to consider how what is in the world (ontology)—the world that some humans have anthropocentrically fashioned in their own image—is inextricably linked to how we know the world (epistemology). Secondly, we need to consider what might be conjured up in order to support a radical reconfiguration of pedagogical practices that do not inadvertently rehearse entrenched discourses of human exceptionalism but seek to find kin in our beds and backyards.

Haraway, (although not calling herself a posthumanist), provides a new way to consider community. She argues that subject-object and nature-culture divides are linked to patriarchal, familial narratives, and calls for an enlarged sense of community based on empathy, accountability, and recognition extending to the nonhuman as subjects such as cells, plants bacteria, and the Earth as a whole (Haraway, 2016). Ecological communities, as beings, objects, and subjects in common, mean we can't as human be exempt from the consequences of being in this common world with others. We are no longer the masters of a nonhuman and human destiny we have solely designed. A pedagogy of posthumanist ecological communities practices becoming with, where all that is in the world has a stake. Haraway (2016) refers becoming with as 'worldlings'—the way in which Earthlings/living beings/entities/forces make and remake the world by affecting each other. She urges us to join forces with kin species. My notion of a pedagogy of ecological communities starts with a recognition that we are animal, we are nature, and we carry the ghostly tracings of our shared past. Those of us who are White, adult, and

privileged others have in many ways become estranged from the planet and from our bodies; the ghosts of our past we hold within exposes us.

To take back our personhood in relation to other species changes everything. Anyone who seriously engages in this task comes to realize that our planet is full of opportunities to form personal relationships with many different kinds of beings. Even if most of us end up forming bonds only with animals we share our lives with, it is just as important as acknowledging nonhuman animal species that exist in faraway lands, oceans, and skies (Spannring, 2017). Rautio (2017a) suggests that if we were to hear when the world speaks to us we should attune to it (Snaza & Weaver, 2015) and attend to it (Ingold, 2010). She notes, "Both attuning and attending allow us to understand how something *not-self* is *similar to your self* and the not-self is *part of your self*'" (Rautio, 2017a, p. 97, author's italics).

The complexity of the human-nonhuman relation in damaged urban landscapes, as explored in this chapter, has enticed me to consider what a new wordling with a host of others might look like, recognizing that these histories traced over time might contribute to a reconfiguring of environmental education. The work of theorizing multispecies relations through an ecological posthumanist lens draws me to consider a co-habitation of human-child-dog-possum bodies as an active history of body connectedness, sensing ecologically my past traces. Nancy (1997) invites us to consider how the *sense of the world* is effected (created, brought about) and affected (changed, touched).

This story of being in this damaged landscape at this time in the Anthropocene is a cobbling together of species conversations taking inherited histories seriously. "Being with the world" is how Rautio describes forming a different view of ourselves as human in relation to nonhumans: "it is about realizing that the relation is always already there, and as much influenced by behavior and existence of other co-existing species as it is by our actions" (2013, p. 448).

Pedagogies fashioned as posthumanist ecological communities endeavor to allow us to understand ourselves not primarily as a member of the species *Homo sapiens* but as a responsive 'being,' irrespective of species, who is entangled in relations with other beings. Rautio provokes us to extend out boundaries of kin by asking *what if we defined kin as those we share food from our fridge with* or as with my dog Poppy *those we sleep with, play with, share possum world's with?* This form of egomorphism—as opposed to anthropomorphism (Milton, 2005)—acknowledges the qualities of having a shared life with others—whether they be human or nonhuman

(Rautio 2017a, 2017b).[1] To explore egomorphism further, I am being attentive to how my one-year-old granddaughter (pre-language) and my dog Poppy encounter one another as *responsive beings*. I deliberately do not interfere, do not name the world, or try to 'educate' either Poppy or Birdy of their encounters of being worldly with each other. Together in this nature-child-dog assemblage my dog Poppy is not being human, just in the same way my granddaughter Birdy is not being a dog—they are sharing being animal, sensing the world and each other through their bodies. It is intelligence beyond human intelligence that is not inscribed through cultural norms of discursive practices. In a posthumanist ecological community we have always been beings in common, bodies being sensed ecologically (Nancy, 1991, 1997). Imposing culture, particularly *languaging*[2] encounters, can interfere with this embodied sensitivity, the naming of objects and experiences reiterates and imposes the humanist pedagogical project by positioning the modern thinking human as the center of creation. Sensing ecologically is to experience through being—beings-in-common being touched by one another (Figs. 6.3 and 6.4).

The notion of ecological communities I have introduced into my environmental education research and teaching is not the same as calls for environmental collective action emanating from political ecology and some of the more activist branches of sustainability education. My position emanates from an understanding that the ecological collective has always been constituted by humans and nonhumans alike—only it has in this age of the human been ignored (Taylor, 2017). In contrast, environmental education drawing on environmental collective action but relying on humanist pedagogies assumes that humans need to band together to take action on *behalf* of the environment. Further, it is mostly motivated by the central anthropocentric premise that by destroying the planet we are jeopardizing the longevity of human life on Earth. Taylor recently noted, for example, "as a field, environmental education has been slow to engage in the interdisciplinary Anthropocene debates and to consider how the Anthropocene's mind-bending complexities, challenges and implications affect its own core-beliefs and approaches" with Malone being "one of the few environmental education scholars who is calling for 'a new imagining of a 'collective ecology' of human and non-human for future

[1] Egomorphism is anthropologist Kay Milton's (2005), adapted by Rautio (2017a).

[2] *Languaging* is the process of making meaning and shaping knowledge and experience through language.

Fig. 6.3 Poppy-Birdy follow the leader. (Author's photograph)

sustainability and environmental education in the Anthropocene" (2017, pp. 1450–1451).

By applying ecological posthumanist pedagogy, I seek to pay close attention and notice the everydayness of children's encounters and relations in the world with others and then consider these forms of co-mingling and co-habitation as the site for reconstituting an ecological community into an ideology of environmental education. The task is to uncover human-nonhuman relations while moving away from a heroic story of human endurance and restore an onto-epistemological ecological ethics that takes into account that we are of the world, not outside of it.

The impact of climate change, habitat destruction, overpopulation, and human consumption means the sixth mass extinction in Earth's history is under way and it is thought to be more severe than previously feared. A quarter of a billion years ago the Earth went through a period called 'the great dying,' an extinction event where 96 percent of the species of plants

Fig. 6.4 Poppy-Birdy exploring the forest. (Author's photograph)

and animals on the planet were lost; it nearly ended all life on the planet. Humans and all nonhuman species currently living on the planet are descendants from the surviving 4 percent of life. We are tied together by a genealogy, a history in our bodies entangled on this landscape. Noticing attunes us to worlds otherwise unrecognized; reconfiguring our sensing of bodies forces us into a new kind of historicity (Chakrabarty, 2009) (Figs. 6.5 and 6.6).

Ghostly Kin #5
They have been amazingly resilient possums how they have adapted to the urban landscapes of our major cities in Australia, holding on to their residency in the trees, garden and homes of the humans who have changed their ancestral lands. A possum life threading a city to its present, Aboriginal past and its ancient 'mammal' history. Evolving in the Miocene, surviving the Pleistocene (Ice age) and flourishing in the Holocene along with the rise of

Fig. 6.5 Poppy-Possum eyes meeting eyes. (Author's photograph)

Fig. 6.6 Poppy-Possum co-mingling Ghostly kin. (Author's photograph)

human civilisation, the Anthropocene will be the fifth epoch lived by our possum kin.

From the backyard I can see her silhouette. She is sitting on the branch eating the remains of an old banana left out for her. In one hand she holds the peeled back skin and the other she holds on to the branch. She eats slowly as if to savour the taste. I can sense her nervousness, as you do too. We both stand still, mesmerized by her beauty, hoping she will stay. I can see she has her full winter fur. She looks much larger than before. After a short time I turn to go back inside. I gesture for you to join me, but you only afford me a quick glance and turn straight back to her. She looks at me, then you. I walk inside. When you scratched at the door two hours later, I knew you were now alone. Her ghostly presence hangs in the air. Eyes meeting eyes, skins touching skins. Dog-possum-human-bodies co-mingling as kin.

Deborah Bird Rose, in her book *Wild Dog Dreaming*, writes of her learning with Australian Aboriginal people, who as her teachers reveal through stories their kinship relations with others, the Law. "Their stories are always grounded in specific places and creatures," she notes (2013, p. 4). Rather than offerings Aboriginal people 'sing up country' to acknowledge the relational human-nonhuman entanglement. "Singing up is always specific. People sing up their own country, their animal and plant relations, their water and rain, their stories," and "Singing up expresses powerful connectivity's founded in knowledge recognition, care and love" (Bird, 2011, p. 62). My dog waits patiently every night in order to find solace in a shared life with a possum.

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CHAPTER 7

Attending to Nonhuman Animals in Pedagogical Relationships and Encounters

Joshua Russell

Over the past five years, I have interviewed over 40 children about their relationships with animals. Each phenomenological interview develops into a narrative accounting of specific relationships or events in children's lived experiences with other animals. In our conversations, we discuss animal life and death in the home and in wild(er) settings. I often ask a set of questions that includes the what, where, how, and who of children's learning about nonhuman animals. Children name a range of human beings who are central pedagogical figures in their animal-focused knowledge. Unsurprisingly, many children reference adult family members—parents, guardians, uncles, aunts, grandparents—as their source of knowledge about a range of animal-related topics. These adults also provide experiential opportunities for children to see and interact with animals in multiple contexts. Other sources of information come from a wide range of human-developed sources, including television shows, various classes in school, teachers, peers, magazines, and the internet.

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Yet from time to time, children I interview reference other animals as significant sources of learning, noting that their observations of and interactions with animals in daily life or in the various contexts mentioned above lead to new knowledge and ideas about animals. One such child was ten-year-old Lily, who described to me some of the things she learned about guinea pigs, dogs, and even wild animals that she had observed and interacted with over several years. I asked her if she knew what animals thought or perceived, and her response covered a range of animal categories:

> Lily: Its kind of weird, of what animals think… sometimes with dogs you can kind of see what they're thinking like, with my other dog Abby, whenever you say "you wanna go for a walk?" she kinda like tips her head or she kind of begs to go for a walk and you can tell, kinda tell when they're hungry, and when they're not. I found with Violet and Rosie [her guinea pigs] that whenever they squeak and climb the cage, they are hungry or thirsty, or just want a treat… and you can tell with garter snakes, 'cuz when their stripes, their yellow stripes are really yellow you can tell that they're really mad and when they're dull they're kinda like, calm. (August 10, 2011)

Lily's direct observations of animals in her life contribute heavily to her knowledge base about animals and "nature" more generally. Lily's remarks foster curiosity about the pedagogical significance of the other animals themselves as embodied, active subjects in interspecies encounters.

My goal in this chapter is to provide some critical insights into the active roles that other animals play in educational discourses and practices by returning focus to the pedagogical relationship itself, including its possibilities and even its limitations. Whether in formal or non-formal settings, the suggestion that nonhuman individuals are active participants in the learning environment provides an opportunity to acknowledge the agency that has long been denied nonhuman animals (Steward, 2009). Considering animals agential participants in educational endeavors also illuminates various counter-hegemonic possibilities regarding their subjectivity, moral consideration, cognitive abilities, capacity for pleasure/pain, and the extent of their intersubjective relations with human learners. In the course of such descriptions, several questions emerge: What does it mean to say that animals *are* educators or that they teach us? To what extent do animals and humans mutually enact the volition, tact, intentionality, reflexivity, and/or commitments to educational praxis that we might require of them in a "pedagogical" relationship? What kinds of learning are negotiated within embodied, interspecies encounters or relationships and to what ends?

To address these questions, I highlight the pedagogical relationship as the core focus of my investigation, emphasizing some of the broad contexts wherein animals are considered key subjects within educational endeavors. I offer some reflections on my own embodied experiences of teaching and learning in the presence of other animals in various sites of environmental, conservation, and humane education. I then turn to the task of establishing a model for locating scholarly literature along a heuristic spectrum of representation that considers animals embodied participants in human learning, from objects of contemplation to active and engaged educators in and of themselves. As part of this mapping exercise, I trace epistemic and ethical questions that arise from describing members of other species as teachers *of humans,* making some forays into ethology to ask questions about other animals' intentions. Finally, in the conclusion, I offer some final reflections on reflexivity as a key feature for examining embodied, interspecies relationships and encounters as pedagogical.

The Myriad Pedagogical Contexts of Human-Animal Interactions

Many animal species occupy significant amounts of space in our daily lives, including the wide range of species we call pets or companion animals. Other animals dwell at the periphery of our perceptions and activities, but occasionally emerge in ways that cause us to take notice or respond. Early in our interview, Lily told me a story about riding in a car with her mother when a deer ran out into the road:

> Lily: well, my Mom hit a deer…
> Joshua: Yeah? What was that like?
> Lily: It was, I was fine until we got home and then the hydrenaline [*sic*] started kicking in. I was freaking out. I was scared to go anywhere, cuz I thought a deer would jump out and come and hit me, so… couldn't sleep for a week, well, I could sleep, I just couldn't go anywhere for like a week or so. Yeah, we couldn't, I didn't want to take the back roads, especially at night… the deer had glass in its chest and it… kinda died. (August 10, 2011)

For Lily, this was a profound learning experience. While we may privilege educational experiences in formal or non-formal contexts, John Dewey reminds us that there is a wider curriculum of lived experience within which we engage in pedagogically significant interactions and situations,

"Education… is a process of living, not a preparation for future living" (Dewey, 2004, p. 19). Applying this interpretation to Lily's comments, one sees that regardless of the places of encounter, nonhuman animals are key figures in our learning to live in the world.

Sharon Todd argues that the relationality of our lived experience makes life itself educational and transformative (2014). Todd emphasizes encounters with human and nonhuman others that shift our sense of self, our worldview, and our knowing, highlighting the potential for shared intentionality between subjects that brings about their mutual change and growth (Todd, 2014). Lucie Sauvé further contextualizes the relational encounter by envisioning education as a striving for more complete and attentive living within socioecological communities:

> Education is an ontological, cultural, and ethical process. It is about being here together, becoming fully human, consciously and meaningfully connected to our ecological world, expanding otherness to include the world beyond what is human. (2009, p. 325)

Sauvé's attentiveness to "being here" revitalizes the active importance of place and context in education, reminding us of the processes and place of learning. Her further contribution is to add the word "together" and to expand togetherness to "beyond what is human." While this is perhaps a simple gesture, she reminds us that "being human is a collective journey," involving our relations with other humans, with our cultures, with our environments, and with all kinds of otherness (Sauvé, 2009, p. 325).

There are multiple contexts in which human and nonhuman animals engage with each other pedagogically, whether in a brief encounter or as part of a lasting relationship. Below, I introduce a few of my own experiences of working in animal-centered, educational contexts. I emphasize the use of program animals and animal bodies in higher education, but other examples might include the presence of pets in classrooms, observation of living animals or taxidermy specimens during zoo and museum field trips, classes in wilderness areas involving field study or natural history, or encounters with nonhuman animals in humane education programs. Mundane, everyday examples of pedagogical relationships abound as well. Lily's brief encounter with the deer is illustrative of a singularly meaningful, narrative event in her wider community. It was unexpected, unplanned, and yet clearly a moment of learning based on a (fleeting) relationship. Likewise, her long-term relationships with guinea pigs dem-

onstrate the educational significance of sustained interspecies relations over time and in the home. Relationships with companion animals in the home can even be tied to knowledge and ecological relations with animals and places in expanding circles of scale (Russell, 2017). In these examples, Lily's learning is a result of a web of relationality involving other humans *and* other animals that is key to understanding how her experiences, knowledge, affects, and moral reasoning shift and develop over time. Animals are agents in each of these contexts, at times benefiting from the encounters or relations, and at times suffering or dying as a result, but their participation is significant and meaningful both for them and for the humans whom they encounter.

Educating with "Ambassador" Animals

Several years ago, I worked as an educator for a prominent zoo. As part of my job, I was tasked with learning how to properly handle the small number of animals that were designated for educational programs. At the zoo, we typically handled invertebrates, small mammals, reptiles, and perhaps one or two birds in front of audiences of many ages and sizes. We were trained to handle the animals to ensure animal welfare (avoiding stress from loud audiences, grabbing hands, etc.) and to maximize the educational experience of the participants. Meeting an animal, it was believed, could be a once-in-a-lifetime experience for children, teenagers, or adults who perhaps had not ventured out into parks, the woods, or had encounters with organisms from faraway lands. Moreover, the individual animals that we introduced to the public had names and personal stories that audiences found endearing. During our programs, we spoke of these individual animals as "ambassadors" for their species, there to teach people to care about and care for nature, conservation, or sustainability. Over time, however, I became quite unsure of this model of education due to difficulties in juggling the expectations of audiences in relation to proximity or touching, alongside my concerns with the animal's welfare, and my ability to effectively guide an emotion-laden learning experience. I also became uncomfortable with the optics of handling an animal that, at times, may have actually been trying to get away from me. I am no longer employed at a zoo, but I often work with zoos and other organizations that utilize ambassador animals, and I remain concerned about the presentation of individual animals as educational tools, objects of interest, learning stimuli, or even as representatives of entire species.

Zoos, aquariums, nature centers, and conservation education organizations around the world widely use animals in their programs, sometimes referring to them as "ambassador animals." These animals are incorporated into educational programs both on-site and off-site in what are sometimes described as Mobile Live Animal Programs (MLAPs). The Association of Zoos and Aquariums (AZA)—the major accrediting body of zoological parks—states that "the presentation of ambassador animals can provide the compelling experience needed for visitors to gain and maintain personal connections with their own relationships with nature" (AZA, 2017). While statistical evidence connects the use or display of live animals to increased knowledge or positive attitude changes in visitors (e.g., Povey & Rios, 2002; Sherwood, Rallis, & Stone, 1989), there are also important critiques of these practices based on issues surrounding the "ambassador" concept and larger concerns about the effectiveness of zoos in meeting conservation goals through breeding programs, release programs, or educational endeavors (Keulartz, 2015). For example, zoos and aquariums have made a concerted effort to move away from being viewed as places of leisure or entertainment and toward a model built on their role in wildlife research, conservation, and education (Zimmermann, 2010). As part of the AZA's conservation education model, then, if ambassador animals continue to be connected to increases in visitor knowledge acquisition and/or positive attitude change, then they will likely continue to be considered as justifiably *employed*.

My concern here is not with the debate over the existence of zoos or their effectiveness in achieving their conservation goals at a local or global scale. Others have taken on the important tasks of justifying and/or critiquing zoos as educational and scientific institutions from both social science perspectives and from ethical points of view (Berger, 1980; Braverman, 2011). Rather, I remain occupied with the larger questions relevant to this chapter about framing the experiences of nonhuman beings within various educational relationships. I see ambassador animal programs as problematic in their description of the animals involved. By naming the individual animals as "ambassadors," educators are forcing a utilitarian burden on those animals to act as conservation representatives of their larger communities or their entire species. The title also suggests that the individual animals are present for the educational benefit of the human audience, who in turn learn ways to benefit other (wild) members of that animal's species or its wider ecology. The educational emphasis turns us away from the relation and toward the benefits of the program for *other* animals or for

conservation more abstractly. A greater attentiveness to the embodied encounters between individual human and nonhuman animals like ambassador animals may alter the ways in which we think about our interspecies relations both within and outside of curricular spaces.

Intentionality and the Limits of Interspecies Encounters

Returning to the pedagogical relation, we must ask, what kinds of learning may be taking place for both the human and nonhuman animal subjects across the range of educational contexts? How can we be certain that the relationship is, itself, pedagogical? If we consider learning from a strictly behaviorist point of view, then we might sketch out various humans-animal relationships that entail traditional views of stimulus-response training, with rewards and punishments meted out to achieve particular goals. Yet such views of learning as solely stimulus-response within complex automatons are dated, and animal studies has taken particular aim at the tradition that can be traced from René Descartes to B. F. Skinner and others, who claim that nonhuman creatures are analogous to machines (Fudge, 2004). It is likely that many nonhuman animals in zoos or captive environments become ambassadors through regular "training" regimens that involve mutual reinforcement rather than simply human domination. In my own experience, ambassador animals are often spoken of in a way that suggests this kind of agency, such as when their behavior makes them unsuitable on any given day for participation in an educational program. Educators may tell the audience that animal *x* is not going to come out today because she is feeling shy, tired, or some other anthropomorphized description of the animal's emotional state. One challenge to this kind of speech is that it hides a greater system of control over that animal's movements, feeding, and freedoms than the human audience may be aware of and so is perhaps more of a figure of speech than a sign of an animal's choice. Yet, while animal training as a form of participation in learning may seem at first glance to be unidirectional and hierarchical, there may be reason to also consider it as an intersubjective, shared experience of agential beings. Perhaps the blue-tongued skink really has acted in a way that conveys its lack of desire to participate in education at that moment. This is a significant possibility. Negotiating body language to take on dog agility courses, Donna Haraway describes working with her

dog Cayenne in just this way; she refers to complex bodily negotiations and bidirectional learning of perceptual signs between two companion species participants (Haraway, 2008).

Like Haraway, there are many other scholars who position nonhuman animals as partners, teachers, and pedagogues to varying degrees. Scholars who adopt a posthumanist point of view tend to challenge the anthropocentrism that exists in human-animal relations and in scholarly work broadly. Posthumanists draw from an always expanding ethological and biological literature that describes the vast continuities and discontinuities that humans share with other animals, including ways in which animal minds, capacities, or social structures prove to be more complex than our own. A growing number of analyses emphasize human-animal power relations as they are actively negotiated rather than as relationships that are controlled and enforced by humans alone (Fox, 2006). Attentiveness to animal agency is a powerful tool for decentering the human or calling into question human activities, even in contexts where humans seem to exude complete control over animal lives, such as in captive settings (Lloro-Bidart, 2014).

The question of animal intentionality, however, remains a sticking point in thinking about how other species contribute to "our" learning as human beings. In his study with preschool children, Gene Myers (2007) traces the possibilities of intersubjectivity (sharing experiences), interintentionality (being focused on the same things) and interaffectivity (aligning emotional states). While he warns that he found little evidence to suggest that animals aligned their own affects or intentions with the children's, Myers does acknowledge the possibility and suggests that children and adults may actually learn to interpret animal actions affectively. Myers' work reveals a promising foundation for a shift in developmental focus on child-animal relationships, one that takes animal agency and children's animality as a starting point.

In giving full, critical treatment to the human-animal relationship and its limitations or potentialities, I ask an important question: What about ethology? Within some scholarly circles, there exist important critiques of overly Western, rationalist, or positivist descriptions of animals as objects (Castricano, 2008). However, the extent to which we categorize all science, and in particular animal behavior or ethology, as a monolithic endeavor determines whether we wish to completely eschew the many wondrous and insightful discoveries about other animals that have emerged from these fields of rigorous research, often with the participation of

animals themselves. Furthermore, it is possible that in abandoning an attempt at removing our own biases in our encounter with others, we may slip into a kind of generous, but ultimately misplaced anthropocentrism or even egocentrism.

Animals have their own motives, their own unique and singular capacities, including those that exist outside of the comprehension of any human being. Nonhuman animals experience reality from their own unique perspectives, and our human perceptual worlds converge and diverge drastically with those of other species. This has long been part of the reason for scientific eschewing of anthropomorphism; it reduces the complexities of other animals' subjective worlds to that which is human. However, anthropomorphism exists in cultures around the world, and many scholars acknowledge that there may be compassionate and ethical reasons to critically engage in anthropomorphism including the potential benefits in animal welfare and even in science more broadly (De Waal, 1999; Greenhough & Roe, 2011).

Traci Warkentin articulates an approach to cautious, interspecies understanding rooted in phenomenological biology and ecological psychology for exploring human-whale interactions. Drawing on Jakob von Uexküll, Warkentin (2010) suggests that it is possible to imaginatively envision another being's sensory lifeworld, including the sights, sounds, scents, flavors, textures, and even their sense of time. Uexküll's (2010) famous concept of the *umwelt*—translated as "environment" or, more roughly, "surrounding world"—extends the possibility of worldhood and multiple realities to all living things. According to Uexküll, who developed his theory of *umwelten* at the turn of the twentieth century, no singular being's reality is more truthful or accurate than another's; they are different yet complementary. This ontological coupling of animal being with environment is the foundation of an *umwelt*, the closed perceptual world of an individual organism. Using Uexküll's (2010) most famous example, the tick, we recognize that its perceptual capacities for smelling blood and sensing body heat are largely unknown and perhaps nonsensical to humans. The tick's *umwelt* can be imagined perhaps, but it can never be truly known or experienced by human observers. Still, its world is no less "real" (Evernden, 1993; Warkentin, 2010).

Within pedagogical relationships, humans and other animals grow and change. For humans in particular, there are benefits in being with other animals in space and attentively observing them. Leesa Fawcett writes about the possibilities of place-based, embodied attentiveness eloquently

when she draws our attention to learning in the presence of porcupines. She suggests, "watching porcupines in their neighboring and interdependent life-world may help more than we can currently imagine" (2005, p. 278). I agree with Fawcett about the counter-hegemonic possibilities of education rooted in embodied encounters across species lines. Likewise, I recognize that embodied encounters with animals can occur in a wide range of contexts beyond that of bioregional landscapes, which is why considering the many particularities of "being here together" with other species—whether in zoos, laboratories, schools, or "wild" places—is key to critical, reflexive pedagogy. Sometimes those contexts of encounter are problematic or ethically fraught, as well as deeply rationalized within standard educational practices, making it difficult to find a path forward. In addition, those who engage in close, embodied practices of attentiveness to other animals may realize that in many instances, other animals are not interested in "us" at all.

Dissection and the Study of (Dead) Animal Bodies

There are five distinct moments in my life when I recall dissecting nonhuman animals' bodies or body parts within a classroom, all of which happened in the K-12 setting. The dissections involved earthworms, frogs, yellow perch, and the eyes and hearts of cows. Each dissection was a part of a biology lab, and the activity guides and associated lab reports emphasized the acquisition of anatomical knowledge. I never saw any of the animals alive. I do not recall being particularly distressed by the events surrounding dissection. In fact, I remember one occasion in high school where I was tasked with performing a dissection of a cow's eye during an open house for new students. I was quite proud that the biology teacher chose me because I had always wanted to be a scientist or a veterinarian. Demonstrating both my knowledge of anatomy and my ability to coolly handle and dissect an animal's body part seemed to go hand in hand with those goals. Yet my reasons for wanting to become a scientist or veterinarian stemmed from my lifelong love of nonhuman animals. It was undoubtedly the emotional connection I felt with other species—from companion animals to the wild animals in my backyard—that motivated my studies and career choices. I was also a sensitive child. So why did I not feel pangs of guilt or anxiety over paring apart the body of a dead animal piece by piece? Had I realized that the organisms were killed for my own education? What did I really learn from and about animals in those encounters with their bodies? Were there other options for learning the same content?

Another series of events in my educational career may further illuminate the disconnect that I am alluding to here. While an undergraduate student in psychology and animal behavior, I was employed as a laboratory animal care technician. Working under the rules of our university's Institutional Animal Care and Use Committee (IACUC), I was responsible for the care of rats, mice, fish, and other organisms that were part of course instruction or research. My job included simultaneously caring for animals—providing them food, water, fresh bedding, and so on—as well as euthanizing them. Some of the animals, such as a community of rats used for a course on animal learning, had been named and observed in their social interactions over the course of a semester. In such cases, it was neither the improvement of students' anatomical knowledge nor arguably beneficial medical research that brought those animals under my care; it was the benefit of intensive but short-term behavioral observation. Such was the culture of psychology departments at the time, and even to this day such learning opportunities are structured and approved under the guidelines of federally mandated IACUC protocols around the country. That is to say, while some scholars or activists may be critical only of individual researchers or educators who utilize animals in such a way as to render their bodies objects of study and disposal, there may be more cause to ask questions about what IACUC committees suggest are appropriate educational ends for the various means they employ at their respective institutions.

A Spectrum of Other-than-Human Animals' Pedagogical Participation

Interspecies encounters are often framed within educational contexts in ways that explicitly and implicitly depict of animals "as" educators or teachers. This impulse to describe nonhuman animals *as* teachers, whether in reference to lessons learned from animals en masse or from individual human-animal relationships or encounters, requires deeper ethical reflection. On the one hand, describing other animals as teachers of humans may actually be a contradictory and even problematic representation of interspecies experience. On the other hand, opening ourselves perceptually and epistemically to the possibility of nonhuman beings as educators furthers a growing, posthumanist desire to decenter the human or challenge deeply entrenched, Western anthropocentrism. It is critical to

reflect on these various possibilities for thinking about and representing nonhuman animals as participants in pedagogical relationships, as well as the very real ethical and epistemic implications that result from the lived experiences themselves.

Given the growing number of publications in environmental education and elsewhere that consider "the question of the animal" (Oakley et al., 2011; Spannring, 2017), it is useful to develop a heuristic scale for identifying both scholarly and practical work along a spectrum of representation and engagement with other animals as subjects in pedagogical relationships with humans. Such a scale might be relevant for thinking through questions regarding the educational possibilities and values of embodied encounters across species lines. Such a heuristic could provide first steps toward illuminating not only nonhuman animals' active participation or subjective contributions within educational projects, but also perhaps the ethical and epistemic value of the relationships being described or employed. I am generally outlining scholarly work on a scale of shallow views or relationships of animals in educational contexts to deeper, more inclusive relations. I provide a few key points that help to situate scholarly work, curricula, goals, or strategies along this spectrum of relationality. These intersecting points and their corresponding questions have to do with representation of animals, assumed or inferred intentionality of other species or beings, and the possible subjectivity or agency of participants in these relationships. Answering each question separately may help us identify the location of a particular work or pedagogical relationship along the heuristic spectrum. Do the human authors or educators utilize language that considers animals as equal participants, agents, or subjects in educational endeavors (representation)? Do scholars consider other animals to be "educators" themselves and what might that entail (intentionality)? Are researchers interested primarily in thinking of animals as objects or tools within an educational environment, which help learners, but perhaps in a largely passive manner (subjectivity and agency)? What other possibilities for pedagogical interactions exist between species? I suggest that such a framework may help us begin to think through more ethically appropriate ways of engaging with other animals, learning from or about them, and even how to more accurately understand the animal side of the pedagogical picture.

Along the spectrum of possibilities, the dissection of other animals' bodies is perhaps an extreme example of what I am referring to as a "shallow" view of animals' participation within education. Dissection is a practice that has long been used in various educational contexts, including

veterinary and other medicine-based education, biology classrooms from middle school through postsecondary school, and even in non-formal contexts (Hug, 2008). Indeed, my own experiences with dissection discussed earlier point to the many ways dissection is embedded in educational practice. While statistics around dissection are challenging to pinpoint, estimated numbers of animals killed for use in North American classrooms alone tend to range in the tens of millions (Oakley, 2012a). Debates about the use of vivisection and dissection are not new, and alternatives have long been provided across a range of educational levels, including computer simulation, three-dimensional modeling, and videotape instruction (Balcombe, 2001). Setting aside the effectiveness of these alternatives in fields such as veterinary and medical education, several scholars have asked questions as to the learning goals of dissection for *any* educational context, including basic middle school anatomy lessons (Hug, 2005, 2008; Oakley, 2012a, 2012b). Jan Oakley's (2012a, 2012b) work in environmental education and science education has raised important questions about the use of dissection, teacher choice, and also the question of students' ability to opt out of the activity, alluding to the implicit and explicit discomfort that exists around killing animals and examining their bodies for acquiring knowledge. Perhaps the active avoidance or disavowal of dissection practices conveys an underlying sense that the body left behind is no longer representative of the being that once was?

Other "shallow" views of animal participation in education might include instruction around hunting, fishing, and wildlife recreation more generally. Often considered to fit within the realm of conservation education, hunter education manuals and hunter certification courses utilize particular descriptions of animals and language that suggest an object-oriented view of nonhuman species. Terms such as "game," "mark," "target," or "head" are commonly used within such documents, erasing not only the species' name or taxonomy of the animals in question, but also their individuality and agency. The term "target," for example, evokes a sense of something static—and one imagines that hunters may be the first to recognize that a doe drinking from a stream 100 yards away is anything but stationary. Hunters are not a homogenous group, and their thinking about animals is likewise not necessarily uniform (Pontius, Greenwood, Ryan, & Greenwood, 2014). So why do educational materials, for example, continue to utilize and perpetuate this terminology? Perhaps it has something to do with the goals of training hunters, which is why these manuals exist in the first place. As noted in the introduction to New York

State's online hunter education manual, the goal is to "provide … knowledge and skills you will need to be a safe, responsible, and ethical hunter with hopes to ensure the continuation of the hunting tradition for present and future generations" (New York Department of Environmental Conservation [NYDEC], 2017). Given the desire to maintain the hunting tradition, language or ideas that emphasize animal subjectivities or agency may run counter to the largely dominionistic view of non-Indigenous hunters in North America (Manfredo, 2008). Thus, while there may be variety of thought or experiences, the formalities of licensing and the American system of conservation that hunter education supports require a singular, shallow view.

Moderate views of animal participation in education are those that maintain a largely anthropocentric view of learning objectives, goals, and techniques, but perhaps consider individual animal welfare or the wider ecological implications of education involving animals. Unsurprisingly, there exists a wide range of studies and theoretical works that constitute this "moderate" realm of animal participation in education. A recent volume, *How Animals Help Students Learn: Research and Practice for Educators and Mental-Health Professionals*, focuses on animals in educational and therapeutic relationships and demonstrates the many ways in which other species are incorporated into learning environments, especially for children (Gee, Fine, & McCardle, 2017). Incorporating human-animal interaction and animal-assisted intervention research along with information from animal welfare work, the editors identify the need for further research and evidence to support best practices to benefit children's development while minimizing or possibly negating animals' stress, suffering, or even death:

> We need a greater understanding of how, when, where, and why animals may influence human cognition and emotion. Further, this information needs to inform best practice protocols and the methodology of involving animals in classrooms… this new frontier is fertile with untapped research possibilities. (Gee et al., 2017, p. 4)

The various chapters of this book identify issues around the evidence for including animals in pedagogical interventions to improve children's attention skills, increase language acquisition or cognitive development, moderate stress levels in the classroom, or improve social behavior. The editors also make important inroads in identifying a need for agreed upon

methods and approaches that ensure legal compliance as well as offer advanced considerations for animal welfare.

The authors of chapters within *How Animals Help Students Learn* utilize a wide range of terms to describe animals within child-animal or human-animal relationships. Animals are described as participants, mascots, pets, motivators, providers of benefits, objects of learning, social supports, and even "pedagogical tools" (MacNamara & MacLean, 2017, p. 183). Such a vast terminology indicates what animal studies scholars have long identified as the inconsistent ways in which we relate to and represent other animals (Derrida, 2002; Fudge, 2004). There are many other examples of these kinds of "practical" works, aimed at instructing educators in the benefits, limits, and even proper keeping of animals in a range of educational settings. Educational collections such as these demonstrate just how wide the middle ground of possibilities is in the heuristic spectrum I am sketching here.

Further examples of moderate views are harder to pinpoint with much certainty, as the active roles of nonhuman subjects in education may be minimized or even ignored. Several studies explore biological learning in relation to classroom pets (e.g., Daly & Suggs, 2010; Herbert & Lynch, 2017; Meadan & Jegatheesan, 2010; Roy, 2011) or when visiting zoos (e.g., Jensen, 2014; Sattler & Bogner, 2017). In these studies, the emphasis remains on what children are learning from caretaking tasks or exposure to new biological information in concert with different degrees of interaction with nonhuman animals. Likewise, there exists a wide body of scholarship that addresses nonhuman animals in very general terms. Rarely do these studies take up the agency of particular animals in these contexts, whether anecdotally or methodologically. I am not suggesting that these gaps diminish the value of that scholarship, but rather that there remains a silence and even perhaps an unwillingness to engage with the possibility of nonhuman subjectivities or agencies within educational encounters. As a result, this middle ground covers a vast array of positions that may skew toward one extreme or the other, raising critical questions about consistency and intentions that perhaps require further clarification.

Finally, there are several examples of scholarship that fit into what we might call "deep" views of animal participation in education within the heuristic spectrum offered here. That is, the researchers and authors of such work indicate a strong affiliation with attributing agency, subjectivity, intentionality, and communication to other animals in their encounters with human beings. Perhaps the most concise exploration of a strong con-

sideration of animals' subjectivity and agency within education comes from a recent literature review by Jane Bone that seeks to describe nonhuman animals as "fourth educator," (2013, p. 57), especially within early childhood education settings. Bone emphasizes the many spaces of children's encounters with animals, and provides a thorough overview of literature in areas such as child-animal play, therapeutic connections, literary studies, and the role of animals in children's school and home environments. In her concluding remarks, Bone (2013) highlights the important work of posthumanist scholars in troubling human-animal or nature-culture binaries, but it is her use of the term "fourth educator" that positions nonhuman animals as central and active agents in children's social worlds, development, and learning.

Beyond Bone's more general early childhood emphasis, we find other examples of scholars addressing the active role of animals in education and even employing the same language of "animals as educators." Some of that work emerges from the field of environmental education, including animistic, phenomenological, Indigenous, and other situated descriptions of embodied, human-animal encounters. These "deep" views tend to consider Western, positivist descriptions of animals to be not only representative of wider colonialist and capitalist forces of violence, appropriation, and displacement, but also lacking in their ethical and epistemic understandings of nonhuman being (Cheney & Weston, 1999). For example, in describing her animist methodological framework, M. J. Barrett identifies nonhuman "persons" in her research as "stakeholders in the world and co-participants in inevitably human knowledge-making and research processes" (2011, p. 124).

Other "deep" view authors have taken similar experientially focused approaches to considering animals as co-participants through methods rooted in Indigenous and phenomenological perspectives. Sean Blenkinsop and Laura Piersol (2013) emphasize, for example, the struggle to balance the felt sense that nonhuman subjects are communicating and speaking to them with an impulse to couch their descriptions only in metaphor. Piersol writes in one journal entry about an encounter with a snake that she was literally spoken to, and that what she learned *from* the snake was about "other ways to be in this world, ones that are cold and curving and salt scented" (Blenkinsop & Piersol, 2013, p. 43). The authors acknowledge both their non-Indigenous identities and the perception that their descriptions of animal teachers may be written off as "romantic" or "crazy." The impulse they fight is one that reminds us of how deeply entrenched colo-

nial distrust of Indigenous (or any "other") ways of knowing and being in the world truly are, and how far we have to go to reconcile Western scientific approaches to knowing the world with the vast other kinds of human knowings that have existed for many generations. Indigenous educators have much to offer in the way of methodologies, theories, and practical approaches to teaching and learning about other-than-human beings. Indigenous scholars have even invited non-Indigenous persons to engage with other ways of knowing that might include "deeper" views of being with other animals, interpreting their signs, or representing them in literature (Lowan-Trudeau, 2012; Simpson, 2002).

Across this spectrum of shallow to deep, then, we begin to see the many complex ways in which other animals are considered figures, subjects, and agents in human communities of learning, knowing, and being. The benefit of thinking through these possibilities within a spectrum is that we may avoid the trap of false dichotomies. Those working with program animals may very well recognize the agency of other beings despite the limitations of their frameworks, language, or even employment responsibilities. Likewise, those who experience the direct communication from animals described above may acknowledge that not every animal they encounter has the interests of the human or their learning goals in mind. Still, while the ethical question of "what is a right relationship with animals in learning contexts" remains, there are perhaps ways of approaching animals as participants in educational endeavors that espouse an ethics-first mentality of engagement (Cheney & Weston, 1999). Such methods of speaking about and being with other species might turn our attentiveness toward the innumerable ways of interpreting embodied encounters beyond those that render animals as "objects" or those that suggest animals are always, already concerned with "us" and the lessons we ought to learn. In my concluding section, I outline a few lingering questions and present some potential future directions toward more attentive approaches to interspecies educational encounters and relationships.

Toward Pedagogically Reflexive Interspecies Encounters

I suggest it is ethically and epistemologically critical to encourage further attentiveness to embodied, interspecies encounters or relationships and their potential meanings for all participants, both human and nonhuman. What I am speaking to here is sometimes referred to as "reflexivity," a term

often directed at researchers that encourages a deep examination of one's role in the research process, one's social and cultural positionality, interpersonal interactions, and even the limitations of one's knowledge (Lowan-Trudeau, 2012). I suggest this kind of reflexivity can become a more explicit part of interspecies encounters beyond the research context, and envision it as a way of examining one's interpretations of other beings' bodily movements or subjectivities, as well as their contributions to the pedagogical relationship itself. There are perhaps several paths toward more reflexive educational encounters with other species that may be illustrative, including critical pedagogies that espouse feminist, posthumanist, queer, and Indigenous methodologies. As an example, the growing literature and online community devoted to "common worlds" methods and pedagogies are a potential starting point because of their approach to decentering the traditional human/adult/Western perspective and emphasizing the materiality and knowledges that emerge from careful attunement to place, nonhuman animals as agents, decolonizing Indigenous perspectives, and the perceptual worlds of children (Taylor & Giugni, 2012).

What remains consistent across reflexive approaches are commitments to positionality as well as a deep openness to the possibilities and limitations of both human and nonhuman animal agency and subjectivity in interspecies interactions. Through such reflexive commitments, one can learn more from and with other beings than is possible through a singular or reductionist view of humanity or animality. The ability to learn from and with other animals comes from our very capacity to experience our differences and similarities, whether in brief or sustained pedagogical relations with them. In short, we learn from other animals as they learn from us, not in the sense of capturing or defining the encounter itself as an object of knowledge, but rather in the ongoing manifestations of education as "being here, together" and in meaningful relation with diverse others.

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PART III

Arts-Based Approaches

CHAPTER 8

The Call of Wild Stories: Crossing Epistemological Borders with Narrative Fiction

Jason Michael Lukasik and Sam A. Bear

A Wild Story

The storm blew in from the north, which was odd for this particular region in France. Circus workers from Le Cirque Petit scrambled to secure the animal enclosures, while others hurriedly brought down the big top, rolling up the canvas lengths and large ropes so they could be loaded onto the waiting trucks. This was the final show for the Circus, which was set to disband after three years of dismal finances. Many of the human acts had already booked work in circuses in Europe, Russia, Canada, or the United States, but the fate of the animal acts was less certain. Circuses have long been criticized for their use of animal performances. The famed Ringling Bros. Circus in the United States closed its doors within a year of ending their well-known elephant show, largely in response to public pressure (Marco & Ansari, 2017).

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The animals waited out the late October storm in the relative comfort of their railway cages—modified boxcars with a small walkway for animal care workers, metal and wood cages for the animals, with small barred windows to the outside that can be closed shut. The railway cages all had electricity, so in the darkness of the storm, which blew in as circus workers were completing their takedown of the final show, there was some dim light available in the train car.

Sam, a black bear who was a fixture with the circus for the past ten years, shared a train with Delores, an older Asian elephant. They had both learned of their fates the day before. Delores overheard two of the animal handlers talking about the zoos that had decided to rescue both of the large creatures. Delores would move to a small elephant sanctuary in California and Sam, the black bear who learned to be bipedal on account of his center ring act of walking on large inflated balls using his hind legs, would move to Toledo, Ohio, to become part of the North American Wilderness exhibit at the Rochester Zoo.

"Well, I suppose you will be able to rest a bit, Delores, at your sanctuary," Sam said as the rail car gently swayed from the strong winds outside.

"But I want to perform!" exclaimed Dolores. "I do not want to simply stand there in some field. I am a circus performer, one of the greatest, mind you, and I wish to perform! The lights, the crowds, the cheers, I cannot imagine living without them. I hear the sanctuaries are supposed to be more like the wild. Well I am civilized! I have worked the circus my entire life, and wish to die there!" She stamped and pounded her large foot against the wood floor of the train car, rattling the joists.

Sam nodded and sighed, "I will miss this life for it is what I have known. But perhaps we will still be performing. So long as there are humans to look at us, and control where we move, eat, sleep, and exist, we perform. We perform circus animal, we perform wild animal."

Delores chuckled, "Always thinking, Sam. I will miss that about you."

Sam and Delores stood there, in the dimly lit train car, as the circus workers hauled the last remnants of Le Cirque Petit into storage crates and slammed the final door on the large caravan of circus train cars. The circus was over. But for Delores and Sam, a new adventure awaited them, and me, for their fictional narratives are continually born out of my theorizing of literature, experience, and wonder—and the words that this process creates for them enables me to listen, respond, and talk with the animals.

Beginnings

I confess that in writing this chapter, I have struggled to fully understand why I am writing it. I knew I had a story to tell—about my work with high school students as an educator at a zoo, where I first incorporated the *animal perspective* to better articulate the complexities of the intersection of human and ecological issues, and my subsequent dissertation work (Lukasik, 2010), a narrative fiction piece with a talking bear named Sam (who you, the reader, met earlier in this piece) who escapes his zoo cage and helped me escape the cages of academia. The dissertation analyzed the hidden colonial curriculum of zoos, but also sought to "avoid falling into 'captivity' of traditional academic work" (p. xvii).

The character of Sam continues to push me to navigate the complex waters of animal (and human) identity and being. While I have published a portion of the dissertation (Lukasik, 2013), and have written about narrative fiction inquiry as a form of public pedagogy (Lukasik, 2010), I have not yet discussed some of the work I did with students at Lincoln Park Zoo in Chicago, which laid a foundation for later interdisciplinary inquiries. This chapter continues to ponder the ways we might begin to pragmatically cross epistemological borders—with students, with readers, and with ourselves.

Much like the work of playwright Edward Albee, who remarked that he writes his plays to figure out why he is writing them (Bloom & Danyo, 2008), this chapter is intended to be generative and emergent. It is interwoven with narrative fiction and dialogue with my imagined co-author, Sam, the bear. The chapter analyzes the use of fiction and creative writing with animals, what I call *wild stories*, to facilitate an emergent *epistemological border crossing* from human to nonhuman, but also allows the narratives to stand without interpretation, so as to preserve fiction's "capacity for delight and wonder, to the sense of mystery surrounding our lives… to the latent feeling of fellowship with all creation" (Conrad, 2007).

I am interrupted by Sam, the bear, who lumbers into the room where I am writing. His fur smells of must and his breath of berries and carrion. His name is Sam. He is creation of my imagination, but he is real to me, and my ongoing attempt to theorize nonhuman animals.

"Do you recall when you first imagined me?" asked Sam.

"While I was writing my dissertation," I quickly replied.

"Think back further, before I took on the form of a bear and took the name of Sam, I was born out of your teaching at the zoo."

I looked up at Sam, and said quietly to myself, "If this snow leopard could talk."

Awakening to Fiction

The high school students made their way through the back halls of the majestic Kovler Lion House at Lincoln Park Zoo. They were part of a program that recruited public high school students to work at the zoo for the summer. The program was created to help connect high school youth with potential careers in zoos and the environment. Students worked as educational liaisons in zoo buildings, helping to interpret exhibits to zoo visitors. I pushed the program to consider the intersection of human and ecological justice. Since our students came from many economically depressed and racially segregated areas of the city, we examined how human and ecological issues were interwoven. For example, we looked at the problem of gentrification as a form of "habitat loss" as it threatened cultural diversity (whereas habitat loss threatens biodiversity in ecological terms).

The animal keeper giving the behind-the-scenes tour stopped at the entrance to the last exhibit.

"The Afghanistan snow leopard" she said, "very endangered. We are lucky to have this one, though he is very old. It is really sad, actually, the wild population is experiencing rapid decline and there is concern whether our efforts here are futile. Many think the snow leopard is as good as extinct."[1]

As we left the Lion House, Tamika, one of my students talked about how much she connected with the snow leopard. "It's sad, you know, that one snow leopard. I wonder if he know about how important he is."

That evening I thought a great deal about the connection that Tamika had made with that individual snow leopard. I also thought about her wondering about the individual animal's self-awareness. If this snow leopard, who had been bred in captivity and hardly knew the world beyond its zoo enclosure in Chicago, was to be made aware of the current events impacting its cousins in the wild, what might it say?

I looked through the current event files and news clippings the next morning. I routinely kept news clippings that may be relevant to emergent inquiries in my zoo classroom. I found an article from *The Telegraph*

[1] While the outlook for snow leopard conservation was dire in 2003, and the cat remains highly endangered, improved technology has yielded more accurate estimate of leopards in the wild, and this number is higher than previously thought (Gertz, 2016; Wildlife Conservation Society, 2016).

(Harrison, 2003) I had seen earlier in the year that provided a great example of the complexities that entail human-ecological relationships and interdependence. The article discussed the increased poaching of the Afghanistan snow leopard after the fall of the Taliban, largely due to Western aid workers who sought the highly prized leopard pelts as another source of revenue. I had asked my students at the zoo to break into three groups. One group researched the biology and ecology of the Afghanistan snow leopard. The second group researched conservation efforts led by zoos and international aid organizations. The third group considered the contemporary political and social context taking place in the natural range of the snow leopard. They spent the better part of the day identifying readings, delegating assignments, researching their particular issues, and making notes for dissemination. Each group presented their research findings at the end of the day, and then we walked over to the leopard enclosure, where the lone snow leopard lay, situated high on the faux rock structure, looking down upon the zoo visitors, and us.

I asked my students to consider the three different narratives we learned about the snow leopard—ecology, conservation, and context—and to consider what this individual leopard might say. "Stop killing us, you stupid humans," yelled Morgan. I asked them to dig deeper, to consider all the complexities and to imagine what an animal perspective might bring to the conversation. We had explored diverse narratives on land and animals, including Indigenous pedagogies (Grande, 2004; McCoy, McKenzie, & Tuck, 2016), agrarian philosophy (Berry, 2005), nonindustrial relationships with the land (Bowers, 2006; Vitek & Jackson, 2008), as well as mainstream scientific and zoologically based perspectives on animal behavior and management. While this was clearly not intended to presuppose the animal perspective, or confuse Indigenous perspectives, for example, as being *of the animal*, the idea was to draw upon multiple perspectives, often contradictory, to imagine alternative, or taboo (Ayers & Ayers, 2011) narratives regarding an animal, its relationship to humans, and human informed contexts. We asked the questions—what was left out of the narratives created about this particular animal? How might we imagine another perspective, informed by diverse knowledges, and authored by the animal?

I asked the students to consider this question and to draft a letter to humanity, written by our lone Afghanistan snow leopard. The students fixed their gaze on the creature whose perspective they were supposed to capture. The next day they returned, with several volunteering to share

their letters. Some were, as might be expected, superficial, with calls on humans to end the plight of the Afghanistan snow leopard. But others grabbed hold of the complexities and contradictions inherent within—they called on humans to examine their own lives and ways of living to consider how their actions impacted beings far away. Some focused on American military involvement in Afghanistan, while others identified the irony that the fall of the Taliban entailed challenges for the snow leopard population.

This work with the students was largely forgotten until much later, when having a beer with a former zoo colleague who connected this activity with my then current dissertation work which saw Sam, the bear, helping me to question the colonial curriculum experienced in the typical visit to the zoo. In many ways, this small project with students paved the way for more radical work involving talking animals. Some of this was prompted by the fact that I was fired from my job at the zoo shortly after our program discourse turned to the question of colonialism and zoos. Zoo management had a vision for the program narrative, and I did not fit into it. As I lost access to all my files, including student work and other artifacts relevant to my work at the zoo, I turned to fictionalization as a means of reclaiming the meaning of my experiences working with students at the zoo, and the formation of my own postcolonial understanding of zoo exhibitory and the performances therein.

While hardly the best method of inquiry (no method of inquiry ever is), narrative fiction provides a process through which we may engage phenomena and explore its meaning through various perspectives. In 1939, Walter Benjamin wrote *The Sabertooth Curriculum* under the pen name of J. Abner Peddiwell, and positioned his fictional piece as a satirical commentary on the history of American education. Maxine Greene, the late educational philosopher (2000), has routinely drawn upon philosophical insights found in novels. The emergence of narrative inquiry (Clandinin & Connelley, 2000; Perl, Counihan, McCormack, & Schnee, 2007) has led to scholarship that analyzes or tells stories. But the use of *fiction as scholarship* remains a relatively new phenomenon. There is a tradition, to be sure. Brent Kilbourn (1999) laid out the potential for fictional theses, and several social science scholars have taken up that charge and have written and discussed fictional dissertations or publications (See Dunlop, 1999; Pagnucci, 2004; Sameshima, 2007). Peter Clough (2002) argued that the fictionalization of experience "offers researchers the opportunity to import fragments of data from various real events in order to speak to the heart of

social consciousness" (p. 8). Carl Leggo and Pauline Sameshima (2014) took up the issue of fiction in research in their contribution to the *Companion to Research in Education*, and suggested that fiction is becoming more accepted in the field of education, though it is important to note that narrative fiction remains a risky methodology since its validity is routinely questioned. But calls for inquiry into the understanding of consciousness, such as the need to integrate ecological mindedness into school curriculum, as opposed to simply learning ecological knowledge (Moroye, 2013), demonstrate the need for modes of inquiry that can explore beneath the surface of knowledge.

The field of educational inquiry reflects important paradigmatic turns in social science inquiry over the past several decades. Fiction as research provides an entrée into the cracks of the history of knowledge. This is consistent with the epistemological move from objective knowledge, the subject of Michel Foucault's critical work (1970, 1972), to subjective knowledge. I think here of Bruno Latour's (2000) intriguing call for the social sciences to become more *objective*—in that they should render the subject studied able to *object* to what is said about them. This turn toward the perspective of the research subject has been pushed more recently through decolonial and posthumanist discourse (Pedersen, 2010; Smith, 1999; Snaza, 2015).

Cary Wolfe (2009) succinctly poses an essential question of posthumanism—"who or what comes 'after' the subject as it is modeled in liberal humanism" (p. 127). I wonder how we might invite students, teachers, and scholars to all think and imagine *beyond* the subject, together. The pressures to conform to traditional academic formats mitigate creative desire. Stories can democratize those intellectual spaces and question the presuppositions of traditional modes of inquiry. One way that stories democratize intellectual spaces is that they invite the reader to interpret the written word through their own cultural lens. Popularized through reader response theory, the concept of "interpretive communities" recognizes that a reading of any text is mitigated through the cultural lens of the reader's community (Fish, 1980). Thinking beyond the subject may require us to abandon the humanist epistemology that simultaneously presupposes the human as central to the world and requires that the human be made more human through an educational process that Nathan Snaza (2015) calls an "anthropological machine" (p. 21), a term he borrows from Georgio Agamben (2004).

In turning our eye to the beast, and representing it as a character in narrative, it is hard to avoid making it an object of our desire. A talking bear is imperfect, as he represents not the animal itself, but the author's current articulation of the meaning of that animal. It represents an intersectional theorization of experience and text. Delores, the elephant in the opening passage of this chapter, was born out of a conversation I had with a colleague, who questioned the heavy-handed critiques of circuses by zoo advocates, considering that elephants may be more intellectually engaged in performing in a circus environment, as opposed to standing in an enclosure, with few enrichment opportunities. And because Delores feels this way does not mean that this holds true for all elephants. The goal here is to raise questions, while keeping other possibilities in play.

Fictionalized dialogue—a technique I use regularly, in both published pieces and when I teach, ponder, and read—enables the author to sort and contextualize theoretical perspective, but grounds the perspectives in the lived experience of characters. It forces the author to consider the lived implications of a particular theoretical orientation. A key consideration is to avoid the pitfall of a didactic dialogue. Conversations in fiction, as creative works, hold the potential to keep nuance alive and to hold multiple contradictions in concert with one another, akin to what Bill Schubert (2008) calls a "multilogue" (p. 55).

Linda Tuhiwai Smith (1999) reminds us that the Cartesian legacies of the "Separation of mind and body, the investing of a human person with a soul, a psyche and a consciousness, the distinction between sense and reason, definitions of human virtue and morality" (p. 48) are culturally patterned knowledges, constructed and invested through the values of the society in which they emerge. There are dangers in the symbolic representation of animals as the Cartesian divide informs *Western* human knowledge as the "centre of legitimate knowledge… and the source of 'civilized' knowledge" (p. 63), whereas the animal may come to integrate marginalized and otherized knowledges, Indigenous epistemologies, and so on. Inquiries of the subaltern should consider not just colonized space, but also the colonization of the metaphysical (mind, spirit, tradition, culture, values, morals) and how these tenets have been appropriated into an epistemological tradition that has remained hostile to Indigenous and subaltern communities, including nonhuman animals.

It is difficult to represent animals in dialogue with humans or with each other without simply presenting the animal as a reflection of us. Wild stories should do more than simply apply human logic and reason about the human

experience to animals. This is anthropocentrism, plain and simple. The goal, instead, should be to understand human experience in relationship to creatures that have been denied the same status as human (and thereby sentience) in dominant constructions of social hierarchy and structure.

Sam interrupts my thinking:

> *"But this is a binary, isn't it? Haven't you told me many times about how binaries are inherently problematic? I say binaries simply are – I am a bear, you are a human and that is okay. But humans have a fetish for individual experience, and this leads you to yearn for nuance in the simplest of things."*
>
> *"Okay," I say, "but let's take an individual encounter and unpack it."*
>
> *Sam reluctantly agreed. He exhaled deeply, in what could only be described as a sigh, for he has previously expressed his distaste for the human process of unpacking. As a bear, he has long said that he 'simply is' and that he "eats what he must and sleeps when he must."* (Lukasik, 2010, p. 131)

> *"Let's say you see a small bird, and it is easy to catch. You eat the bird. Does the bird 'feel' anything as you devour it?"*
>
> *Sam looked at me with his beady eyes and spoke with a monotone rumble. "I feel little for the bird, and the bird may feel little for me. For I see it as food, and, well, I do not know what the bird sees for itself. I do not think about it in the way that a human considers the situation. I see the world around me and respond in the moment. You humans see in terms of words and human thoughts. That is unique. But it is not the only way. I know that just as this bird finds its last moment in the clenches of my jaws, I may see my last moment being felled by a hunter's bullet, or in a fight with another black bear in a territorial dispute. I do not get sentimental about it, for it just is. You humans tend to take this sentiment of 'live in the moment' as some sort of credo – a higher order of valuing what you call the little things. No. The little things are simply those happenings that make up our lives, and I simply live them."*
>
> *"But you must feel," I say, surprised by Sam's lack of apparent empathy. "Certainly, there is tremendous scientific evidence regarding the emotional and cognitive lives of animals."*
>
> *"What compels you to know this?" Sam growled. "Maybe you find evidence because you wish to. Can you not just exist and live and be a part of the world around you? I worry that your wish to know is just another way to control and to cage."*

David Foster Wallace (2004), in his thoughtful essay about the Maine Lobster Festival, discusses the ethics of preparing (killing) lobsters for gastronomical pleasure and the implication of animal sentience. He wonders whether lobsters "feel pain but don't feel anything *about* it" (p. 63). Wallace

suggests that when a lobster is placed into a kettle of boiling hot water and attempts to leave the pot, it is an "expression of *preference*" which he posits could be considered the "decisive criterion for real suffering" (p. 64). His article captures the many nuances of understanding animal experience, recognizing that there are numerous ways to feel, given the differences in brain and nervous system. Unlike Josephine Donovan (2006) and Traci Warkentin (2010), who both call for greater empathic understanding of animal emotional capacity, Wallace argued that it would be inappropriate to "extend our reasoning about pain and morality to animals" (p. 62).

Crossing Epistemological Borders

The importance of understanding the animal and teaching meaningfully toward such understanding is perhaps more important today, given the context of our ecological crisis. But the ability to understand animals is hindered by the very fact that our own interpretive location informs the ways we understand the animal other.

Sam stumbles over to my writing desk. He knocks over several books when he bumps into the bookcase. He is a large bear for a small room.

"I find little reason for you to write this chapter. What can be said, in your language, in your texts, to fully appreciate the perspective I bring?"

Shortly after Sam, the bear, was revealed through my inquiry, I read Ishmael, by Daniel Quinn, to him. He disliked it a great deal. While he appreciated the intent and message, he was amazed that humans have no problem inventing the perspective of an animal, and then presenting it, as if it were the animal itself.

I turned to Sam, "I had hoped to write about how you, and how dialogues with animals, can provide entrees to meaningful conversations about the environment."

"I will never understand humans," Sam sighed. "You write, but you do not act. Why must you write this down? Live and be."

"Well, in academia, we write to disseminate and share our thoughts," I say, trying to clarify the purpose of writing this chapter.

"Who reads it?" asks Sam.

"Well, I suppose we are both brought to life, in an existentialist way, by the readers currently reading our conversation."

"Similar to my life in the circus and then the zoo. I existed in those places through the eyes of my human captors."

"And how do you exist now?" I ask.

"I am forever a representation," Sam sighed.

Nigel Rothfels (2002) argued that animal identity "is constrained by the mediated nature of their presence in our historical record" (p. 5). The animals that we see are created and consumed through the retelling of our stories, scientific or otherwise, about them. There are, of course, the animals we do not see but we know are there. The human observer integrates relevant knowledge about animals, seen or unseen, and *imagines* their story—their life, their patterns, how they might *think*, and how they *are*.

Homi Bhabha's (1994) concept of mimicry can be helpful here. Mimicry, in the colonial use of the word, represents a double bind. Whereas colonial subjects may mimic the colonizers as an aspiration, so too they may mimic the colonizer as critic. Mimicry is "like a camouflage, not a harmonization of repression of difference, but a form of resemblance, that differs from or defends presence by displaying it in part, metonymically" (p. 128). In this way, the animal comes to represent not simply a human in animal clothes, but a statement on humanity itself and a criticism of the normalization of particular expressions of humanness at the expense of the wide range of sentient experiences had by all creatures. It is the fixed ordering of things, the categories, the speciation of creatures that separates beasts from beings, animals from humans, wild from tamed. As much as we create and consume culture, we also create and consume its transgressions.

And we must acknowledge that our own social and political locations inform how we come to the subject of animals. Ellen Somekawa and Elizabeth Smith (1988), who documented the postmodern turn in historiography, noted that the interpretations or worldviews of the historian *invent* the evidence they use to create historical fact. In other words, knowledge supported by evidence is, in part, invented by the scholar, in that worldviews and narratives inform the evidence we identify, deem worthwhile, and use to support claims. Recognizing this, we may free ourselves to listen to evidence as windows into the worldview that sees it, names it, and centers it as knowledge. And when we find contradictory worldviews sharing evidence, that is when things become interesting.

As we think into difference and create characters with an intent to understand across difference, we inevitably embrace the unfixedness of our labels, identities, and cultures. Who's to say that the moose feels anything toward the human Northwoods visitors she encounters? Who's to say that if she does feel, she does so in a way that mimics human feelings? As an educative tool, fiction enables us to play with the ideas, to fuse emotions and actions, across beings and creatures. Just as Jerome Bruner

(2002) argued that "narrative… is a dialectic between what was expected and what came to pass" (p. 15), we might engage in the middle space between wonder and knowledge with animals and fiction.

I appreciate the metaphor of a border crossing, as we cannot completely vacate the human epistemology which is our grounding, our *native land*. But we may cross the border, momentarily, and experience other ways of knowing as a visitor. It does not capture the totality of the different epistemology, but provides a window to attempt to understand beyond the immediacy of our lived experience. It is temporary but can be transformative, and causes us to rethink and see again our native epistemology when we return to it, informed by our limited experience as a visitor to another way of knowing.

In applying this approach to environmental education, as I did in my work at the zoo, I find that creating space for imagination lays a meaningful foundation on which to build inquiry across epistemology. Much of the existing work in environmental education fails to move beyond traditional Western epistemological and pedagogical viewpoints. Environmental education practice remains largely teacher driven, focusing on direct delivery methods and avoiding "disturbing messages" (Esson & Moss, 2013). Teresa Lloro-Bidart and Connie Russell (2017) have found that informal science education scholarship generally lacks "engagement with more critical, politicized work in science and environmental education… and… fails to consider how these institutions serve as conduits of an anthropocentric hidden curriculum" (p. 43). This is not to say that educationalists and scientists alike are not working to push boundaries (e.g., consider this volume). On one level, I can appreciate the affinity to certainty and direct answers in environmental education—certainly, the ecological crisis warrants immediate changes to human behavior in order to avoid almost certain calamity (Wuebbles et al., 2017). But in the drive to provide the learner with accurate and precise information, institutions like zoos and aquariums fail to draw upon the rich imaginative power of visitors and students who make their own unique connections with the animals in the cage.

Telling wild stories gives us permission to consider other ways of knowing, and compels us to think beyond our own immediate worldview. When combined with study that offers various perspectives and ideas, fiction becomes a vehicle through which we may be able to seek a deeper understanding. Discourse with fictional animals will remain problematic for its limited ability to completely understand the animal perspective, though it

can enable us to consider possibilities. In those possibilities, we might break from our humanist tradition, albeit briefly, and consider the perspectives of nonhuman subjects who have been refused a voice. Ambiguity is preserved through fiction, and the medium enables scholars, teachers, and students to keep alive the complexities inherent to inquiry into speciated understanding. Indeed, the venture of education is one of making meaning out of contradiction and appreciating the honest narratives that emerge from studying these complexities. This work can be only enhanced by envisaging educational inquiry and practice as a multilogue—intersectional, drawn upon diverse knowledges and experiences, and imagined with voices of critique and possibility. And sometimes, a bear may speak.

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CHAPTER 9

On the Origin of the Dragon: Evolving a Transdisciplinary Research Pedagogy

D. B. Poli and Lisa Stoneman

Coal is power. Fossil fuel moguls are among the richest and most powerful members of a community, while coal turns people, machines, and the surrounding area black. Air quality is compromised when methane, carbon dioxide, and sulfur gases escape leaving behind dangerous and/or explosive conditions; the resource curse is apparent in these crises (Douglas & Walker, 2016; Freese, 2003). Animals are scared away from their natural habitats; plants are torn from the ground and shoved aside. Waterways are sullied, filled in, and forgotten. The original landscape is dramatically and inexorably altered—the human need for fuel and the greed of the industry moguls taking precedence over the beauty and functionality of the landscape. David Jardine (2009) engages this "living character of places" and "what is required of us if that living and our living there is to go on" (p. 157). Yet coal may have birthed a mythical animal so powerful

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and culturally beloved that it has existed for millennia (Poli & Stoneman, 2017). From destruction, beauty can emerge (Lotz-Sisitka & Burt, 2002). The dragon's genesis provides a grounding for conservation and preservation through a unique lens, fostering new discussions and attitudes in environmental studies pedagogy.

Introduction: Defining the Species

From this wider perspective, the Carboniferous layer (approximately 300 million years old) provides far more than fossil fuels. Throughout time, humans have created stories about their environment as a way of explaining natural phenomena. Greek and Roman mythology is full of these tales. Giving imagery to such occurrences as sunrise and the changing tides, these interpretive narratives provided a way to ensure information was accurately passed down to later generations. The story allows us to better understand our environment (Reinsborough, 2008). As knowledge grew, the story changed to better represent newer, more accurate information (Dundes, 1965). In this vein, people once believed that coal was a living entity, able to act on its environment independently (Freese, 2003). After all, fire emerged from it, foul-smelling odors were emitted, and its form and appearance were changeable. Was it so illogical to assign life to such a powerful thing?

If one looks at such beliefs as an early form of natural history, then the resultant stories become the beginning of scientific knowledge, forming a cultural schema from which people continue to draw (Bell & Russell, 1999; Jardine, 2009). Even modern quarrymen and miners with some understanding of fossilization refer to Carboniferous plant fossil specimen as snakes (Fig. 9.1). Coal seams worldwide are full of Carboniferous-era

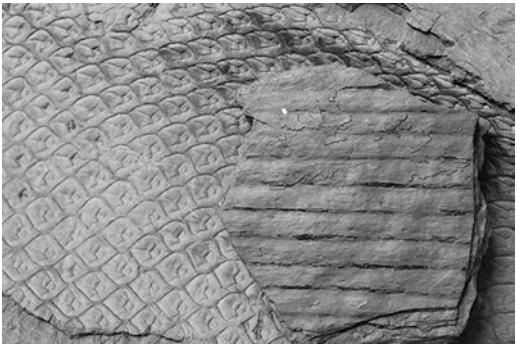

Fig. 9.1 Carboniferous plant fossil specimen

fossil plants due to the perfect fossilization conditions in the swampy areas in which these plants lived. Upon death, plants fell to the bottom of the swamps and layered into an anoxic (oxygen depleted) environment which preserved the patterns of leaves, stems, and roots in beautiful detail. Ferns, lycopods, and calamites (ancient horsetails) made up the numerous and predominant species easily seen in these strata. In modern times, scientists explore these ancient environments for clues about environmental change and ecological evolution.

One such study of Carboniferous plant fossils has connected scientists to these environments for a purpose that goes beyond study of the fossils or the environment, and extends to cultural beliefs as they are reflected in myth. These plant fossils provided fodder for investigation into dragon lore (Poli & Stoneman, 2017). This serendipitous inquiry began when a plant biologist (D. Poli) gave a talk about Appalachian plants and joked that the ancestors of tiny, modern lycopods, which used to be 100 feet tall, had a reptilian, dragon-like scale pattern and were found in heavily forested areas. A folklorist (L. Stoneman), hearing that description, inquired about a potential connection between these plants and dragon myth. What better environment for the likes of fairies and dragons? A research project was born.

The unlikely pair immediately began to work with students on researching and mapping the worldwide locations of Carboniferous fossil plants, specifically *Lepidodendron* and *Sigillaria*, and the locations of dragon folklore. When the fossil and folklore maps were compared, a correlation became obvious (Poli & Stoneman, 2017; Poli, Stoneman, Siburn, Bader, & Clarke, 2016). If the fossils are related to the folklore, then the dragon's symbolic power might also be linked to the pragmatic power of coal. Other researchers have felt the dragon's power as well, likening it to the research process in general and to environmental education research in particular (Lotz-Sisitka & Burt, 2002). Metaphorically, as coal is harvested from mines and quarries, the dragon dies—ground into gravel or hacked into chunks of fossil fuel. An uncannily similar description emerges from the tale of the Lambton Worm, a British dragon whose chopped, blackened body parts float down the Wear River, past a local coal mine (Poli & Stoneman, 2017; Sharpe, 1834).

Through a transdisciplinary research lens, the dragon, in all her powerful glory may be reborn. For us, that power serves to coalesce a disparate group of researchers in pursuit of the origins of dragon folklore throughout the world. This daunting task, one that can have no absolute answer, has pulled together multiple disciplines, as well as partners outside of academia, into a participatory action research project (Derry & Fischer, 2005;

Kemmis & McTaggart, 2000) that continues to evolve as new researchers join and new products emerge. The framework of the project is inherently synergistic rather than competitive, relying on diversity of thinking to reach "next step" kinds of answers rather than definitive resolutions.

These new inquiries, at first glance, often appear too disparate to connect to the original mission, but they are worked through and data continually reevaluated and analyzed through the lens of the original question. A business student's project on dragon product trade routes is an example of this (presented later). If paths lead to dead ends, then the researcher steps back and alters the process or abandons that particular path. An example of this occurred when a student examined the possibility of dragon evolution from the reptile lineage and found it an unviable scenario. This outcome is not considered a failure, only a path that is not yet open or one that needs to be approached from a different mindset. This allowance of, and even encouragement toward, "failure" is pedagogically important (Cannon & Edmondson, 2005; Sitkin, 1992). Our stance assumes that there are no finite answers to complex problems, but rather the continual posing and answering of questions that emerge organically throughout the project.

It is not enough today for researchers to pursue a question from only one disciplinary perspective (Scheff, 2013). Paths must intersect, converge, even implode and re-emerge to address the messy issues of the world (American Association for the Advancement of Science, 2011; Segalàs & Tejedor, 2016). Imagination is not the dichotomous enemy of the rational scientific thought needed for these inquiries. Creative leaps, fired by unrestricted imaginative thought are, in fact, what can drive innovation forward. This chapter addresses the power of using a transdisciplinary pedagogical and research methodology to answer complex and dynamic questions (Klein, 2013; Lloro-Bidart, 2015). Such a methodology incorporates and embraces exploration, collaboration, and invention within a construct that is also philosophically inclusive, bringing together the best of what a diverse mindset has to offer (Brown, Harris, & Russell, 2010).

In this chapter, we will illustrate the plant fossil-folklore project's deep connection to both natural history and lore even to the point of their inextricable melding. Given the unique nature of the project, explanations of particular folklore will be explored. Examples of student and faculty research processes as well as products will be described. The project's evolutionary nature will be used to structure the chapter to reinforce the depth of importance we attach to growth, dynamic change, and adaptability.

Connections: The Dragon's Power

Natural history recreates the Earth's story, facilitating the understanding of linear events within a specific time and place. Natural history allows us to grasp nature's power, while providing the tools to project future ecological and evolutionary changes (Fawcett, 2005). Human history is part of natural history; so, when man disconnects from nature and the stories inspired by it, we lose part of the Earth's story as well. Scholars must continue to realize that science is not superior to, or separate from, the human story (Bai, Elza, Kovacs, & Romanycia, 2010); any substantive inquiry must consider science and culture as a symbiotic life form (Rives-East & Lima, 2013; Ross, Hooten, & Cohen, 2013). Our original inquiry, connecting plant fossils to dragon lore, explores the supposition that humans observe the world around them and in making sense of it, create lore, the first natural history (Poli & Stoneman, 2017).

Dragon folklore is found throughout the world and dragons are integral parts of a number of cultures as symbols of power and protection. Often the dragon is gendered. If female, she may be a part of a culture's creation myth or represent the conflict between patriarchal and feminist ideals. Babylonian god Marduk slays another god, Tiamat, often described as a serpent-like dragon, creating the heavens and earth from her body. Tiamat is also responsible for spawning dragons in her death throes (King, 1902). A similar creation story recounts Egyptian god, Ra's conquest of serpent-like Apep, the god of Chaos (Pinch, 2004). If male, the dragon may be the herald of an army or the antagonist of a vanquishing hero. Sixth-century Saxon king, Harold, flies the white dragon on his battle flag, while Greek hero Jason rescues Andromeda from the sea serpent, often depicted with dragon-like appearance, to which her community has sacrificed her (Hamilton, 1942). Dragons have also populated the art world of diverse cultures for thousands of years, represented within the mythologies of the Greeks, Romans, Celts, and Ottomans (Kuehn, 2011).

In addition to the dragon as folklore character, products from the dragon (dragon's blood, teeth, and bones) appear in trade documents, including ships' logs, over hundreds of years (Dill, Stoneman, & Poli, in prep). The term "dragon" is used in the common (e.g. dragonfly and snapdragon) and scientific names (e.g. *Dracaena draco*) of a number of organisms. Often, the name is derived from the appearance similarities to dragons, but may also relate to the dragon's mythical powers as they were associated to a living organism. This pervasiveness and diversity of dragon

lore speaks to its deep cultural significance. A beast this important is useful as a means of influence.

Today, animals, whether real or mythical, elicit compassion, empathy, and curiosity (Goralnik, Nelson, Gosnell, & Leigh, 2016). Once engendered, this flame of interest can be fanned to create a passionate, engaged learning environment. The power of the dragon in our plant fossil-folklore project is quite literal, giving context and energy to all of the projects which branch from it. However, the power of the metaphorical dragon that stands as a symbol of this transdisciplinary research may be just as great, providing a multifaceted body from which many stakeholders can draw inspiration. Scholars, students, and non-students alike are intrigued for disparate reasons.

Just as the beast matures, a project grows, adapts, and mutates over time. Projects co-evolve and aid in one another's survival. Eventually, some relationships may deteriorate. Other projects move into domains that are uncomfortable for the researchers. Just as the beast must do to survive, successful projects learn to adapt to these dynamic situations. Individual research paths endure; others go extinct, but the species grows strongest when different disciplines bring their talents to the table within an open, transdisciplinary framework of inquiry (Stoneman, Poli, & Dooley, 2015). The remaining portion of this chapter will provide examples of these pedagogy/research occurrences.

Adaptation

Although the initial hypothesis that Carboniferous plant fossils were connected to the origins of dragon folklore was intentionally interdisciplinary, several individual sub-projects did not follow that interdisciplinary path (Poli & Stoneman, 2017). Some were led by students growing into the research process; some involved scholars working within their own fields, and/or within their avocations. Their adaptations did not take them outside their wheelhouse, but allowed them to adjust within it to grow their projects. Examples of these adaptations follow.

Two students who were charged with analyzing dragon folklore for location of story, plot details, and beast description became interested in moving in a more creative direction with their own story ideas (Morgan, 2010). One student penned a dragon-based, children's novella, incorporating geographic and lore data from the project (Denisch, 2016). The

other student wrote an adolescent novel, also using the dragon lore she had researched as her inspiration (Weltmann, 2016). These books, published through a natural history museum, were connected through the authors' sharing of particular characters and plotlines so that they might be enjoyed by readers over a wide age range. During creation, the writers worked individually, with one another, with the illustrators who were also a part of the larger project, and with other faculty outside the project. Both of the students took their experience to the next level upon graduation, pursuing writing as a career path and continuing to be involved with Dragon Research Collaborative (DRC) research and publications, presentations, fine art products, and exhibitions (Stoneman et al., 2015). One entered a Master's program in creative writing and returned to the DRC specifically to work on her book series as part of her graduate education.

In some instances, scholars and artists from outside the project became so interested in the research that they chose to use their talents to enhance the project. What resulted was a community inspired and transformed by the synergy (Reinsborough, 2008). For example, poet Melanie Almeder (2016), gave voice to the dragon, similar to Brock's (2008) suggestion, and to the inquiry surrounding it in "Fossil":

> 1. Fossil
>
> Is this the quiet
> century, this century
> of machinations,
> this pilfered, masticated earth,
> the kin and glen
> of coal, the human throng
> dug under, dug
> out—miners' lives
> guttered in the damp
> black of those corridors?
> In this din, this unquiet:
> stone after stone.
>
> 2. (for D.B. and L.)
>
> What reverie
> took the scientist,
> the teacher, to the stones,

to their black and grey
engravatures, their fired
coronations of leaf
and frond,

to read them
with a quiet,
unalarmed clarity,
and to see, in their constellations,
a kind of wonder and a kind
of hinge between things—

how the world
burned and the flames
were wings.

3. Lullaby

Of the stories since,
we might make a beast,
or two, a chain of mail, a bestiary,

a rosary, an incantation
about how the world,
it burns out into other

seedlings, into the talc
on our feet, into the sparks
our witches intone,

into wars, again,
until we cannot carry
all the charrings,

and, humaned, not of stone,
we go to sleep, the wick
of us breathing.

A general medievalist provided insight into the specific dragon lore of the French Tarasque. A paleontologist, specializing in giant snakes, veered off his path to explore connections between the Carboniferous plant scale patterns and those of known snakes (Hastings, in review). All provide a

new narrative for a once understood landscape, similar to Brock's (2008), Canadian landscape. Original visual art was created by artists who are accomplished scholars in other disciplines. One, a biologist, illustrated the novella cited earlier (Denisch, 2016), and also created paintings for a hybrid art-natural history museum exhibit (see below in Co-evolution). Another, a modern languages professor, contributed sculptures and giclée prints to the same exhibit. In addition, he designed a type font that embodied the palimpsest nature of the fossil-folklore inquiry, each character appearing to rest above an earlier text. This font was used in printing the books mentioned above and in other project areas as well.

These efforts, emerging directly from the plant fossil-folklore idea, took on individual significance, but remained within the discipline or the avocation of their creators. Such was not the case for all areas of the inquiry, as some research paths moved across discipline-specific boundaries and beyond the comfort level of some academic factions.

Mutation

Projects are expected to shift focus as new data are uncovered. Undergraduate students' interest is not always solidified as they continue to develop through their college life (Cueso, 2005). Therefore, student projects are often the most likely to mutate from the original ideas. One example of this shift is a freshman biology major, interested in veterinary medicine, who joined the group to explore reptile evolution. During her initial research, some of which originated from Latin American sources, she became equally interested in language, specifically Spanish. Immediately, she chose to shift her reptile project to explore how the Spanish language influenced reptile names and descriptions. By her sophomore year, she expanded on this language path, exploring the etymology of the word "dragon" across a variety of languages, eventually writing and presenting with her mentor on her findings (Clarke & Ogier, in review). Coming full circle, during her junior year, she took her love of language, Spanish culture, and reptiles, and began to explore the connections between fossils, reptiles, Quetzalcoatl, and Saint George (Kalinoski & Clarke, in review).

The changes represented in this student's work turned out to be a catalyst (a positive mutation, so to speak) for the co-evolution of other projects among the larger population; see Co-evolution below (Scholz, 2001). Several other students began to view their research from a wider lens, one that revealed how projects intersected in potentially helpful ways (Garrison

& Kanuka, 2004). Initially, the mutations were driven by this original student's energy and passion during research meetings as she asked divergent questions about her project as well as those of others. Her critical questions drove others to ponder how their inquiries might expand, encouraging them to ask deeper, and wider-ranging questions (Scholz, 2001). Some students tapped into the resultant synergy and formed a commensal relationship with another project that was more developed than their own, following their peers' examples for research process and analysis. Several of these relationships were formed as students realized their work would grow best in tandem with that of others.

Survival

As helpful as mutation can be to survival, what happens when a project goes down a rabbit hole and ends up outside the scholarly expertise of the team? How do you move a project forward when necessary skill sets are not obvious, or available to the group? Can a project be successful when experts play only a short-term role in the research? While a transdisciplinary track is powerful in solving large, multidimensional problems, it may actually be critical to the survival of a project endangered by the limited expertise or time of a sole researcher or burdened by what appear as failures in the research (Smith, 2015).

When investigating "messy" challenges, it is helpful to rely on a structure that can facilitate cohesion among the team members. Weekly research meetings keep the team on task and in touch with one another (Stoneman et al., 2015). For example, the students writing novels were able to converse with those doing illustrations, but were also in juxtaposition with those reviewing historical documents or extracting plant oils. Students reported gaining much insight from these interdisciplinary points of contact (Poli et al., 2016). Listening to group members share their successes and challenges from the week allows all to consider their project from many angles, not just their own points of view. Weeks into these discussion times, one student noted that they had begun to lose track of which person was working in or from a particular discipline—"I don't think about who is a scientist and who is a writer—we are all working on dragons!"

Transdisciplinary project teams may be constantly reminded that they are not experts in all of the content areas necessary to their research. Our answer to this challenge was to form think tanks, or in our parlance, supergroups, which functioned to bridge information gaps by utilizing the

group's collective knowledge and creating a supportive learning cohort (Stoneman et al., 2015). For optimal outcomes, egos and biases must be set aside so that members may work together as equals (Stoneman et al., 2015). Students often recruit their favorite professors; friends call on friends; members of the team search the wider community for the requisite expertise. As questions are resolved, new ones surface; relationships are created and evolve; and the project team cohort and their decisions remain organic. Given the camaraderie built throughout our project, when group members choose to leave active conversations, we continue to include them in all social community activities, such as group meals or excursions. We now have DRC alumni who return to help short term or continue with arms of the project that are in a new site location. Once Team Dragon, always Team Dragon!

Co-evolution, the Next Generation: Colonies

The DRC may be considered an original "colony," having formed in order to pursue a transdisciplinary question (Stoneman et al., 2015). A foundational pivot point in this research pedagogy comes with the formation of additional "colonies" that evolve from a new, individual idea. One example of this process revolves around another biology major's project. Rebecca Conter was studying paleobotany, had an interest in art, and was considering education within the context of a museum career. This multidimensional set of interests took the form of a single DRC project to develop an art-science-based learning tool that was engaging but provided flexibility of audience use. A plant evolution activity book was the outcome (Conter, Poli, & Stoneman, 2016).

Conter worked with biology/art major (Travis Lumpkin) who identified and artistically represented Carboniferous fossil species and their relation to paleoecology for his senior thesis. She used his fossil identification drawings as the basis for the educational material in her activity book. After consideration of particular learning processes, she began to produce the scientific content that fleshed out the other student's foundational work and made all of it applicable to a K-12 science education purpose (e.g. plant life cycles and modern examples of plant species). Once Conter's curricular content was set, she began to create a set of characters and a narrative that would allow the reader to access and interact with the content of the activity book. She created two dragons (a male and a female) as well as a group of multiethnic young museum staff. During character and

narrative development, Conter sought the advice of education specialists to ensure that her work aligned with state and federal learning standards and that her exercises were pedagogically sound. She was responsible for and was immersed in every multifaceted aspect of this process, often moving far afield of her actual college coursework. The colony of workers that her ideas spawned created a dynamic vortex as the complexity of the project grew. The publication of the book through a state museum has continued to pull others into the project as it has been translated into Spanish, Twi, French, and Chinese (Conter et al., 2016). The author and her mentors have been able to work with five K-12 public school science teachers in three states to test the efficacy of the book's activities in a classroom setting. At the time of this publication, the teachers are implementing the activity book with developmentally, economically, geographically, and ethnically diverse groups of students to address science content and skills. Feedback from teachers and students will be used in the creation of additional activity books in other content areas; the first of these is currently underway in social studies.

As the group and its products grew, others outside the team began to question how these seemingly disparate projects were connected. Given the natural history beginnings of the inquiry, the DRC co-leaders decided to create a museum exhibit as a way to blend the scholarly projects into one, cohesive story. After planning museum studies' lessons into weekly research meetings, often bringing in specialists to address particular issues or problems, students and scholars were tasked with developing their individual contributions into single museum panels. This task required continual check-ins with target completion dates to ensure the progress of such a diverse project. Simplifying a complex idea into a "tweet-sized" panel was difficult, and required the enhancement of the team's evaluation and synthesis skills. Wording was critical and consideration also needed to be given to the overall interplay of all the panels. The exhibit consumed the efforts of every member of the team as we worked together, changing task groups as the project goals necessitated. For example, while constructing art installations, artists would collaborate on the appearance and style or tone of their contributions. Then members moved into more content-driven groups, such as ethnobotany or mapping, to accomplish additional goals. Individual, unique interests were fully developed and pulled together into a crossover art-natural history exhibit. The overarching story, always clear to the team, was now revealed in a format that made the transdisciplinary question more obvious to the general public, In this

form, one is still being modified as the team discovers more about the plant fossil-folklore hypothesis, the exhibit has appeared in a local art gallery, a state natural history museum, and a regional fantasy festival. It continues to travel upon request.

Another colony example is a newer project, spun from the original exhibit and crafted by a sight-impaired young woman, a psychology major hoping to attend medical school. Her interests in the DRC stemmed from a desire to find a peer group and to do research that could have a real-world, positive impact. As she attended meetings regarding the finalization of the hybrid museum exhibit mentioned earlier in this chapter, she approached us and asked if she could use the Carboniferous plant fossils to develop a museum piece for sight-impaired visitors. The fossils are highly tactile and therefore accessible to such an audience, but the exhibit design group had not considered this idea since we were not intimately familiar with vision problems. Experts in the field of disabilities education, technology, and museum studies were called in to advise and after multiple conversations with a natural history museum director, it became clear that this new project's success would require the input of additional experts such as disabilities subspecialists who could help (Handa, Dairoku, & Toriyama, 2010; Hetherington, 2003). In pursuing her question, this student wrote a successful proposal and has created her own colony of scholars and other students to help guide the project to completion. A case study pilot was envisioned and a small exhibit entered development to be studied for efficacy within the intended population. After working through the project's initial phase, the student has even considered how her exhibit design could lead to a future career other than medicine.

Invasion

Just as with a natural organism's evolution, the dragon too has invaded locations within academe and the result has been dramatic and unexpected. Student and scholar involvement beyond the initial plant fossil-folklore inquiry has been high and the results prolific. But, invasion causes others to respond with heightened alertness and a sense of defensiveness, especially when invading populations grow large quickly. The project's rapid entry into new content areas resulted in questions about the validity of the project and the qualifications of the scholars. Crossing disciplinary boundaries, an integral part of transdisciplinary methodology, may be misunderstood by colleagues who prefer to work solely within their own discipline.

Pushback can come from all directions: students, faculty, and/or administration (Brewer, 1999). After all, disciplinary structures provide a familiar path to success; breaking through the boundaries of that structure can cause fear and anxiety. From a business perspective, those in charge of administering academe may see practical impediments to interdisciplinary work in the form of quandaries related to teaching unit allocations and tenure and promotion policies (Creamer & Lattuca, 2005; Lattuca, 2001; Thompson, Owen, Lindsay, Leonard, & Cronin, 2017).

Through these challenges, we continue to focus on student learning and the outcomes of the research. Students who embrace and succeed with challenging projects, colleagues who provide help that ranges beyond our areas of expertise, administrators who allow academic credit for interdisciplinary work, all serve to foster continuing inquiry. We are able to work with other scholars at moments of professional and personal growth. In doing so, we find that the ability to help each other move into new intellectual directions is powerful, even transformational. Our work has sparked a number of collegial efforts, several of which have little if anything to do with dragons or fossils. They are ideas born of the dragon, a think tank that this perspective engenders—a maker-space for ideas that are never wrong, merely unfinished.

Conclusion

Dark and scaly, hibernating and reserving power, coal and the dragon are useful to some, but the harbinger of death for others. The villagers wait in fear for fiery destruction, but the metaphorical beast addresses this seemingly insurmountable problem. Even in their fear, the folk love the dragon tale, a fact supported in modern times by the continued dragon representations in comic books, video games, movies, literature, pop art, festivals, and children's cartoons. While the dragon is fearsome, it also brings people together, creating conversations, moving us away from divisiveness, toward common ground (Marshall, 2015). What does this phenomenon say about our needs as a community? As a country? As a species?

Domesticating the dragon must be a communal effort; everyone's input is needed. Change happens when a critical mass in the community work toward a common goal. In a world so full of diverse viewpoints and physical environments, a common catalyst is necessary to focus the community's attention on the effort at hand. Pooling the resources and talents of multidisciplinary stakeholders means tapping into knowledge, skills,

and processes that are not limited by the perspective of one researcher or academic domain (Marshall, 2015; Polk, 2014). Art provides the visual. Music provides the soundtrack. Science provides the facts. Literature creates the story. Mathematics reveals the patterns. Business markets the knowledge. The sum is greater than its parts. Why limit the number and diversity of brains working on the same problem and in so doing, limit the data? To heal a fractured community or exploited land, all perspectives must be heard and values examined (Polk, 2014). Only then can new cultural mores be determined.

We can become the tough, scaly dragon, individually and collectively. What better skin in which to wrap yourself as you attack the evils of the world? What better ally when one needs a champion? The dragon's power provides a unique way to present modern environmental concerns to a larger audience. And if sustainability is the goal—what better symbol than the dragon, who has survived worldwide across eons? When apathy abounds in environmental crises, the dragon may provide the inspiration people need to engage and rally around a cause. The dragon's soul becomes our own. It is clear to us that the dragon has "the potential to reenchant the world" of environmental education (Morgan, 2010, p. 383). As we save the dragon, we may save our world.

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CHAPTER 10

Coexisting Entities in Multispecies Worlds: Arts-Based Methodologies for Decolonial Pedagogies

Leesa Fawcett and Morgan Johnson

Introduction

We ask in this chapter how students' purposeful, imaginative belonging to their multispecies worlds can be nurtured as a starting point for creative resistance to dominant anthropocentric pedagogies. The *purposefulness* of this chapter is to explore how environmental education and ethics can resist reproducing colonizing, instrumental relations to coexisting entities.[1] Theoretically,

[1] We struggle to find the appropriate term to express the combination of organic, inorganic, and still unknown entities that coexist on this planet. We have decided to not use a phrase that references this bigger world back to humans (as commonly used phrases such as non-human or more-than-human do), or that excludes certain entities such as land, soil, rocks, or water. For example, Elizabeth Povinelli (2016) draws our attention to the hierarchies implied in how we define a life versus a nonlife. In recognition of the fact that this issue of naming is an ongoing debate that we wish to contribute to (but by no means claim to

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this is in keeping with philosopher Hans Jonas' (1966) use of the word "purposefulness" as a quality that belongs to all living beings, not just humans. Our theoretical framework ranges across the intersections of experiential environmental education, Indigenous pedagogies (specifically Anishinaabe and Haudenosaunee), animal studies, and phenomenological perspectives. While vexatious pedagogical questions call forth interdisciplinary responses and responsibilities, they also trouble issues of gendering, neo-colonization, and disembodied learning. We are motivated by intersectional analyses examining the links between oppressions and are encouraged by interdisciplinary collaboration, experiential understanding, and the explicit linking of theories to praxis. The second half of this chapter draws on arts-based praxis as a way to disrupt and reimagine narratives of justice and multispecies pedagogies. How do the arts contribute to anti-hegemonic understandings of naturecultures in environmental education (Fawcett, 2013) and to multispecies flourishing (Haraway, 2016) more generally? We discuss two specific examples in theater and filmmaking and conclude by exploring how these artistic methods might offer an imaginative entry into rethinking how humans relate to their coexisting entities in non-hierarchical ways.

Interspecies Relationships and Ecofeminism: Reciprocity and Responsibility

Ecofeminism has a long history of intersectional analyses attending to gender, race, class, ability, and sexuality as they interconnect with environmental and animal issues (Gaard, 2011). Ecofeminism has in turn influenced feminist environmental educators, including some of the earliest calls for intersectional research in environmental education (Fawcett, 2000; Russell & Bell, 1996) to its more recent resurgence in the field (e.g., Gough & Whitehouse, 2017; Lloro-Bidart, 2018; Piersol & Timmerman, 2017; Russell & Semenko, 2016) as well as in the related fields of ecojustice education (e.g., Martusewicz, Edmunston, & Lupinacci, 2011), ecopedagogy (e.g., Kahn, 2011), and critical animal studies pedagogy (Corman & Vandrovcová, 2014).

The strangled knot of anthropocentrism is tied up with patriarchy, racism, colonialism, ableism, and speciesism. To hold certain humans as the

solve), we are for now working with the term "coexisting entities," although we still find the term "multispecies worlds" useful in certain situations as well.

center of all meaning and actions is a violent form of estrangement from other life forms. The splitting of humans from other animals, from the relational ties across ecologies, tears natures and cultures apart (Haraway, 2003, 2016) and reinforces oppressive dualisms (i.e., male/female; human/animal, etc.) that ecofeminist philosopher Val Plumwood (2002) warned us about over 15 years ago. Indigenous and Black feminist scholars as well as ecofeminist and animal studies scholars have been at the forefront of intersectional analysis, staying attentive to the distinct as well as overlapping oppressions based on race, gender, species, age, sexuality, class, ability, and body size (e.g., Crenshaw, 1989; Gaard, 2011; Lloro-Bidart & Finewood, 2018; Maina-Okori, Koushik, & Wilson, 2018; Nxumalo & Cedillo, 2017; Russell & Semenko, 2016), with some exploring the implications of dehumanization and animalization (e.g., Deckha, 2012; Fawcett, 2013; Russell & Semenko, 2016). As Carol Adams (2014) suggests, being treated like an animal means, "I was made vulnerable to violence by being moved down the species ladder" (p. 22).

In glaring contrast to the dominant practices and teaching of anthropocentrism critiqued by ecofeminist environmental educators, many Indigenous scholars have discussed the relationality of all knowledge: "It is not just interpersonal relationships, … but it is a relationship with all of creation. It is with the cosmos, it is with the animals, with the plants, with the earth that we share this knowledge" (Wilson, 2008, pp. 176–177). Learning about and from many different Indigenous perspectives offers environmental education an antidote to species hierarchies and to explicit and hidden settler-colonial curricula. Anishinaabeg scholar, Leanne Betasamosake Simpson (2008) emphasizes that for Anishinaabe people "animal clans were highly respected and were seen as self-determining, political 'nations'" (p. 33).[2] To hold the current rates of animal extinctions up to the moonlight of Anishinaabe epistemology is to witness the demise of innumerable relationships—known and yet to be known. Alongside these unprecedented anthropogenic extinction rates is the loss of the diversity of *times and spaces* other distinct beings live in and carry on with their lives through.

[2] We are learning from our own relationships and experiences with Indigenous communities, while reading primary and secondary sources—we do all this with the utmost humility, knowing that our knowledge is very small and incomplete, and yet it is a beginning. Leanne Betasamosake Simpson (2016) acknowledges her learning and guidance from Elders Edna Manitowabi, Gdigaa Migizi (Doug Williams) and Shirley Williams.

Scientists have recently discovered that Greenland sharks may be able to live for 400 years, according to a recent study using radiocarbon dating (Nielsen et al., 2016). The longevity of these creatures is just one incredible aspect of their lives, but as important are the other beings and places they have interacted with in their lifetimes. For example, since Greenland sharks are believed to become sexually mature after they are 150 years old, we are intrigued by who and what they influence in their first 150 years before reproducing their own species. Furthermore, Hal Whitehead and Luke Rendell (2014) discuss how orca, short-finned, pilot and (possibly) sperm whales are the only known species other than humans to live for decades after losing the ability to reproduce. Whitehead and Rendell (2014) argue that these older whales, usually the matriarchs of a pod, pass down invaluable cultural and environmental knowledge, as well as provide care to younger generations. The knowledge and learning these matriarchs pass down to the next generation is a form of reciprocity across families, time, and community environments. In reciprocal relationships, we have responsibilities. As Glen Coulthard (2014) eloquently asserts, "the land *as a system of reciprocal relations and obligations* can teach us about living our lives in relation to one another and the natural world" (p. 13, our emphasis).

Offerings and Solidarity: Indigenous and Phenomenological Ontologies

In Anishinaabe thought, humans were the last and youngest creation so the least experienced and most dependent on all other beings (Benton-Banai, 2004). If we start here, we accept that this is a radically different way of making sense of the world as it is. This is not an anthropocentric ontology complete with human hubris. Here is an acknowledgment, up front and center, that human beings learned from the other beings in order to be human—it is a slight to the linear path of the so-called Anthropocene. Simpson (2014) links this idea to a methodology for changing the way we think about education, arguing that, "[l]ike governance, leadership and every other aspect of reciprocated life, education comes from the roots up. It comes from being enveloped by land" (p. 9). Simpson argues that students (whether in the formal, institutional understanding of the word or not) must not only be inspired to learn, they must actively consent to the choice to learn: "Just as it is unthinkable within a Nishnaabeg worldview for a leader to impose their will on their people, it

is unthinkable to impose an agenda onto another living thing – in essence, the context is the curriculum and land, aki, is the context" (p. 10). This idea problematizes the notion that humans can independently and objectively decide what other humans should learn about multispecies worlds, whether that is through art, experience, or textbooks.

In keeping with Simpson's (2014) writing on context as curriculum, we need to be mindful in our writing and practices of the way Indigenous knowledges may be taken out of their context in ways that are potentially appropriative, specifically as practiced by non-Indigenous academics or artists. In our creative, personal, and academic pursuits, we take guidance from Lynn Gehl's wonderful document *Ally Bill of Responsibilities* (2011), which offers guidelines for those working to be allies to Indigenous peoples. Gehl advocates for, among other things: constant critical reflection, thoughtful listening, positioning oneself as a researcher, staying attentive to subjectivity, and actively working to gage if an individual or group's actions are working to address a need as expressed by the community. This helpful tool for activists, artists, and academics alike ends with the recommendation that potential allies should "accept the responsibility of learning and reading more about their role as effective allies" (p. 12). This reminds us that to be an ally is an ongoing process, not a certification. We must always be humble and critical in our pursuits, and our pursuits must be continuous.

If we start from these ontological and epistemological positionings, where do we go from here and how do we go about our teaching and learning? Antonio Gramsci (1971) asked us to examine the power of conjunctural forces to assess the opportunities to challenge deeper structural forces. To fall back on anthropocentric ideals and human-centered institutions is to miss this "new" beginning, which is really a very old beginning. It is to miss the opportunities and openings for new ways of seeing and learning in currents of multispecies liveliness in a supposed era of reconciliation. The Truth and Reconciliation Commission (TRC) of Canada (2015), while largely focused on human relations surrounding reconciliation (particularly in regard to the Canadian government's role in the colonial violence of the residential school system), also notes that if true reconciliation is to occur it will also require reconciliation with the environment of which we are part and the beings upon which we rely. The TRC Report (2015) references Elder Reg Crowshoe who critiques the idea that true reconciliation can ever be realized if it is only narrowly defined as a relationship between settlers and Indigenous peoples. Building

on Crowshoe's advice, the TRC states that, "[i]f human beings resolve problems between themselves but continue to destroy the natural world, then reconciliation remains incomplete" (p. 123), which echoes Anishinaabeg legal scholar Deborah McGregor's (2009) argument that environmental justice must also include justice for water/land and other non-humans.

To accept anthropocentric ontologies and epistemologies is also to miss an enlivened horizon from which to challenge the structures of colonization and oppression across species. As Karen Barad (2007) reminds us: "phenomena—whether lizards, electrons or humans—exist only as a result of, and part of the world's on-going intra-activity, its dynamic and contingent differentiation into specific relationalities" (p. 353). In our new/old learnings we do not want to ignore the often unwanted or forgotten life—bacteria, viruses, molds, parasites—as they are intimately tied to our environmental relationality.

Learning at this conjuncture, then, includes: (a) holding onto animal subjectivity; (b) attending to human-animal interdependencies and relationships, while rejecting species hierarchies; and (c) observing context-specific, multispecies ecological relations, while remaining cognizant of the ways in which transnational capitalism works to impede them. Cognitive ethology has been demonstrating for decades that animals have subjective and intersubjective experiences (De Waal, 2016), which has been taken up in a number of fields. For example, Canadian lawyer, Lesli Bisgould (2011) offers an excellent critique of animals as property, aligning herself with animal activists and ethological findings in establishing animals as sentient subjects. Traci Warkentin's (2011) attentiveness to "interspecies etiquette" and the ethical affordances available, in particular human-animal interactions, nourish our notions of research, educational, and philosophical praxes. And in their cogent discussion of the interplay of animal rights and Indigenous rights, Will Kymlicka and Sue Donaldson (2015) critique the unstable "strategy of avoidance" commonly arrived at in these debates. To exemplify what is ethically at stake, they discuss the 2013 situation in Short Hills Provincial Park in southwestern Ontario, when the Haudenosaunee Council claimed the right to hunt deer in its traditional territory (Treaty: Albany Deed of 1701)—an area that included the Park, which had banned hunting for decades. Academics, local animal activist groups, and the press were violently divided by the polarization between recognition of the sovereignty of Indigenous peoples and the hunting of the deer in the park.

Kymlicka and Donaldson (2015) acknowledge the shared ground between Indigenous rights and animal rights groups: both see animals as sentient subjects; both critique the Eurocentric legal interpretation of animals as property; and both condemn industrial, instrumental exploitation of land and animals. We agree with Kymlicka and Donaldson's (2015) argument that to leave the debate encased in narrow Western legal terms misses the potential for political coalition and ethical obligations. In the spirit of continuing this important dialogue, we differ with their narrow human-encased concepts of consent. Consent is not a large enough imaginary container to hold accountable the examples of predation between species. Informed consent is an extremely valuable and just concept in human relations, but it hardly does justice to the multiplicity of known, unknown, and ambiguous human-animal encounters from predation to hunting to pet ownership. We follow Billy Ray Belcourt (2014) when he argues that "those spaces for animal activism that center whiteness thus further impossibilize decolonization and leave intact *the* power relation that makes speciesism possible" (p. 4, emphasis in original). For us, this means it is impossible for animal rights or environmental activism to successfully work toward social and environmental justice without seriously addressing the unique forms of oppression that ongoing colonial violence takes.

Anishinaabe and Haudenosaunee ontologies believe animals are our kin and must be treated with respect as our elders. "All our Relations" is a kincentric ontology of Being, which details human obligations to other animals (Arquette, 1999). From another ontological perspective, there is Maurice Merleau-Ponty's (1963) phenomenological sense of a "strange kinship" where we are strangers (*étrangers*) and also connected as kin through the flesh of the world. Tewa scholar, Gregory Cajete (2004) believes that Indigenous knowledges are similar to such phenomenological thinking because they are both grounded in sensory, place-based, lived experiences of the land. Yet despite these various kincentric ways of thinking, epistemologies of anthropocentrism and other hierarchies of being still dominate the explicit and implicit curricula. How can we resist these epistemological forces, particularly if, as Charles Menzies (2013) cautions after his frustrating experience teaching a course on First Nations history in British Columbia, "polite education will not transform colonial power" (p. 189)? In this next section, we explore how artistic practices might offer one such avenue of resistance and transformative education. We highlight a few different examples to point to their generative potential to reimagine and practice different interspecies and decolonial futures.

Creative Resistance: Arts-Based Praxis

We propose a mixture of arts-based research methodologies and experiments to present new ways to approach animal studies pedagogy (McKenzie, Russell, Fawcett, & Timmerman, 2010), while highlighting animal agency, decolonial justice, and diverse human-animal relationships. Interdisciplinary authors such as Una Chaudhuri (2014) have been foundational in theorizing methods of using the arts (in particular, theater and performance) to reimagine human relations with animals and other coexisting entities. In her introduction to the book *Animal Acts*, a unique collection of theater scripts on human-animal relations with accompanying commentary by scholars in theater and animal studies, Chaudhuri (2014) argues that:

> Animals show us how much we still need to know, not only about them but also about ourselves. At the same time, they show us how very hard it is going to be to attain that knowledge, especially if we cling to our old habits of inquiry, our old reliance on "ocular proof" and disembodied ideas. Much of the new knowledge gained through animal acts comes from going way past the limits of logic and book learning, and accepting instruction, instead, from the life of bodies…[theatre's] reliance on physicality, materiality, and embodiment makes it especially useful for venturing into areas where language is absent. (p. 10)

The pieces in *Animal Acts* are particularly fruitful for conversations around methods of arts education that are oriented toward social and environmental justice. The authors and playwrights are critical of (mis)representations of other beings or experiences through abstraction or metaphor. Chaudhuri (2014) reminds us that, in co-editor and contributor Holly Hughes' words, "*animals are not a metaphor*" (p. 4, emphasis in original). The ways in which an "other" animal is represented (whether in art or more formal curriculum) could have a positive, negative, or inconsequential impact on the actual real lives and experiences of the animals. Consequently, they may have a direct effect on animal bodies and human-animal relationships of trust and reciprocity, as we elaborate in the next section through discussion of specific arts-based educational initiatives in which we have been involved.

Theater: Imperceptible

First, we turn to an example of a recent theater production both authors were involved in to theorize how we can learn about multispecies relations and allyship through arts-based practice. *Imperceptible* is a solo performance piece that uses documentary and personal narrative along with fictional worlds and characters to push at the boundaries of what we mean by the designation of human, in particular, following Chaudhuri (2014), by questioning what we think of as "ocular proof " (p. 10). Morgan Johnson created the play with dramaturgical support from Leesa Fawcett and Honor Ford-Smith. It was first produced by Animacy Theatre Collective at the Helen Gardiner Playhouse, directed by Alexandra Simpson and performed by Morgan Johnson. *Imperceptible* is a multimedia and mask solo performance piece that looks at inland city dwellers' relationships to marine ecosystems and how these relationships can open conversations about environmental and social justice.

Developed from time spent volunteering for the Indigenous land defense camp on Lelu Island in the Pacific Northwest where the Canadian federal government had approved construction of a liquefied natural gas export terminal on unceded territory without the hereditary leaders' consent, *Imperceptible* combines personal storytelling with dystopic fictional characters to speak to the problematically colonial, patriarchal, and anthropocentric ways many of us learn about the world we live in. As the playwright/performer is a settler to this land we now call Canada, the play also asks how we can think of ethical connections to place through the lens of settler-colonialism. Broadly speaking, in a visually oriented society, how do we foster ethical relations when the full impacts of our actions (whether geographically or temporally) are rarely visible to us? How do we relate ethically to that which is outside of our unique perceptual worldview, or to use the term of phenomenological biologist Jakob von Uexküll (1992), beyond our perceptual *umwelt*?

Part of the process for *Imperceptible* was making use of autobiographical and autoethnographical devices, especially ones that pertain to multispecies worlds, which led to this work becoming, in part, a multispecies autoethnography. This term not only combines methodological processes of positionality with theories of multispecies worlds that is characteristic of multispecies ethnographies (Kirksey & Helmreich, 2010), it also serves as a framework for avoiding the potential trap of "reduc[ing] the unknown subjectivity of an 'other' being to the limited range of our own experi-

ences" (Fawcett, 2000, p. 140). A multispecies autoethnography sees the personal history of the author/playwright not as an individualized story but as it relates to economic, social, political, *and* multispecies influences. This is done in order to prioritize personal narrative over fact-based research in light of Margaret Kovach's (2009) argument for the decolonizing potential of using the research methodology of storywork and Lynn Gehl's (2011) *Ally Bill* that encourages allies to be "fully grounded in their own ancestral history and culture" (p. 12). The creation and production of *Imperceptible* also strove to be accountable to Kovach's (2009) and Gehl's (2011) calls for solidarity work to stay true to the needs of the community, not just the researcher. The play was researched, created, and performed with support from the leaders at the camp on Lelu Island, and all profits from ticket sales were donated to the camp.

This multispecies autoethnography also sees the performer's body as a multispecies assemblage. Because the play was not able to be performed outside, Simpson's (2014) discussion of land as curriculum may seem, at first, not resonant but, without undermining the importance of being physically immersed outside on the land, perhaps there are ways we can bring a land education pedagogy into classrooms or theater studios when no alternative is available? Perhaps the idea of a multispecies autoethnography becomes a form of land education as it obfuscates any hierarchized divide between self and land/water/air/life forms, viscerally reminding us of our connection to our surroundings. As Manulani Aluli Meyer (2008) writes of land education from an Indigenous Hawaiian perspective:

> Land is our mother. *This is not a metaphor.* For the Native Hawaiians speaking of knowledge, land was the central theme that drew forth all others. You came from a place. You grew in a place and you had a relationship with that place. *This is an epistemological idea.* Because of the high mobility of Americans and billboards as childhood scenery, many find this idea difficult to comprehend…One does not simply learn about land, we learn best *from* land. (p. 219, emphasis in original)

This ethic of relating to land is explored in *Imperceptible* through the character of Microscopic Child, who is performed in a larval mask, a large white mask whose features are depicted as on the verge of becoming (see Figs. 10.1 and 10.2), which was inspired, in part, by the pedagogy of physical theater practitioner/theorist Jacques Lecoq (2001). Microscopic Child is not microscopic in size; rather, she is a yet-to-be-defined Being who permanently sees the entire world as if through a microscope. She

Fig. 10.1 Morgan Johnson as Microscopic Child. (Photograph taken as promotional material for Animacy Theatre Collective's production of the play *Imperceptible*. Photography by Kathryn Hanson)

Fig. 10.2 Morgan Johnson as Microscopic Child. (Photograph taken as promotional material for Animacy Theatre Collective's production of the play *Imperceptible*. Photography by Kathryn Hanson)

therefore sees her microbial self as an assemblage of many microscopic Beings rather than as a singular individual. She challenges anthropocentricism in a variety of ways, but primarily she prods us to imagine what an ocularcentric outlook might be missing by her embodied knowledge of the ways that humans rely on a plethora of other beings in order to survive. For example, when she visits a body of water, she can see the thousands of phytoplankton (microscopic marine algae) that produce oxygen and consume carbon dioxide, thereby benefitting many multispecies worlds. Near the beginning of the play she speaks directly to the *microorganisms* surrounding her:

> when we take a breath in or a sip of water or touch the subway walls, or when we shower or blink or sleep or dream or wake up we see billions of you. Billions of you becoming us. Billions of interactions and they continue throughout our body so we are always shifting around into something just a little bit different than the moment before. Hey. If no one can see with our eyes can anyone see us?

Thus, Microscopic Child imaginatively harkens to Enrique Salmón's (2013) writing on kincentric ecology as realized through the act of breathing, when he writes:

> With the awareness that one's breath is shared by all surrounding life, that one's emergence into this world was possibly caused by some of the lifeforms around one's environment, and that one is responsible for its mutual survival, it becomes apparent that it is related to you; that it shares a kinship with you and with all humans. (pp. 1331–1332)

Imperceptible reminds us of the type of othering that can happen when anthropocentric structures are left unchallenged and the character of Microscopic Child follows Haraway (2003) when she argues that, "[b]eings do not preexist their relatings" (p. 6).

Documentaries and Other Media

We find the themes of kincentric ecologies and multispecies relations can also be brought into more formal and informal teaching environments through documentaries and film. In teaching, we can use documentaries as arts-based methods, to educate, inspire, and to motivate action in a variety of fields. In the field of human-animal relations, for example,

documentaries that we have critically explored in class include *Grizzly Man*, *Blackfish*, *The Cove*, and *Earthlings*, as have others (e.g., Corman & Vandrovcová, 2014; Korteweg & Oakley, 2014; Newman, 2015). We follow Nicole Shukin's biopolitical critique of animal lives (2009) and her attention to the agency of species, which leads her to be hopeful about resistance. This theory is further developed in Chia-ju Chang's (2017) ideas about the role of documentaries in redemption and hope:

> What narrative and aesthetic strategies do filmmakers use to prompt post-cinematic change or action?…In recognizing the potential negatives of documentaries to traumatize, terrorize and numb the audience…I contend that the documentary genre materializes its activist potential when it is conceived as a positive and affective technological apparatus of hope and aspiration. (p. 96)

In considering Chang's (2017) first question presented here, we would like to turn to the short video, "Leaks" which was made from the spoken word poem of the same name. The poem was written and performed by Anishinaabeg artist, activist, and writer Leanne Betasamosake Simpson, whose academic writing we have drawn on throughout earlier sections of this chapter.[3] It was created in response to a racist encounter that Simpson and her young daughter had while harvesting wild leeks in their territory that had a significant impact on both of them. They created a video a few years later with Métis filmmaker Cara Mumford, which combines a reenactment of the events with footage of Simpson's daughter, Minowe, dancing and Simpson recording her poem in the studio. Although it sprung from a traumatizing experience, the film is a beautiful celebration of Indigenous resurgence and strength; the reenactment of events primarily focus on harvesting and dancing, with the racist encounter displayed only through close-up shots on Minowe's face and blurry movements out of a rainy car window. In Mumford's (2016) article describing the creation of the film, she describes how this was done to avoid everyone having to relive the initial trauma. It also may be part of the answer to Chang's (2017) question: "What narrative and aesthetic strategies do filmmakers use to prompt post-cinematic change or action?" (p. 96). It is clear that films such as this one can be transformative not just for the audiences through the

[3] This video is available to view for free on Simpson's website: https://www.leannesimpson.ca/

process of spectatorship, but also for the artists during the process of creation. Mumford (2016) describes how making this film was completely process oriented, with the final piece only coming together in the editing room. She expresses how the process was a turning point in her understanding of Indigenous feminism as she experienced the central role that specific and personal connections to a unique part of the land can have for Indigenous resurgence and sovereignty. Mumford (2016) also quotes Simpson, articulating her inspiration for creating the piece: "I wanted to do something to create that moment when you can protect the ones you love, while also trying to undo some of the damage" (p. 33). Simpson's (2013) poem beautifully combines words of strength to her daughter with descriptions of the incident:

> *you are the breath over the ice on the lake. you are the one the grandmothers sing to through the rapids. you are the saved seeds of allies. you are the space between embraces*
> she's always going to remember this
> *you are rebellion, resistance, re-imagination*
> her body will remember
> *you are dug up roads, 27 day standoffs, the foil of industry prospectors*
> she can't speak about it for a year, which is 1/6 of her life
> *for every one of your questions there is a story hidden in the skin of the forest. use them as flint, fodder, love songs, medicine. you are from a place of unflinching power, the holder of our stories, the one who speaks up.* (pp. 131–132)

While watching the film, we as viewers can experience two distinct narratives that strengthen this film's power as a documentary: we see through reenactments what Simpson and Minowe went through during the incident, but we also see a glimpse of what Simpson, Minowe, and Mumford experienced in creating their artistic response to the incident. Mumford (2016) thus documents their process of healing through artistic practice as much as she documents a deeply troubling encounter. What we are left with is a story about a mother helping and watching her young daughter find new sources of strength and resilience and not, ultimately, a story about a child facing an ugly manifestation of systemic racism. Arts-based practices, like "Leaks" can disrupt colonizing relationships and reimagine multispecies flourishing as Indigenous justice and healing. In the early spring, we are always struck by the bright green of the wild leeks in the neighboring woods; resurgence is real and so precious.

We have discussed two artistic performances, *Imperceptible* and *Leaks*, and while they are vastly different pieces, we find one of their most interesting intersections is the goal of making the process of creation transparent in the final outcome. In *Imperceptible*, we are brought into the research process through autobiographical storytelling by the playwright/performer and in *Leaks* we see the process of artistic creation by the storytellers as a way of healing. Epistemologically, this method offers a situated narrative that acknowledges and celebrates the positionality of the artist, disrupting the didactic, fact-based form that many pieces of environmental art, and certainly many documentaries, fall into. Inspired by the artists' lived experience of multispecies worlds and the intersections of injustices, both artistic pieces resist reproducing colonizing, hierarchical relationships to coexisting entities.

Conclusions/Imaginings

These arts-based methodologies provide alternate points of view about the emotional frictions of human exceptionalism and the decolonial power of resurgent cultural practices. They narrate new possibilities across differences. As Thomas King (2003) advises, "[w]ant a different ethic? Tell a different story" (p. 164). Ideally, by collectively working on multispecies flourishing and worldly problems, students may gather greater emotional resilience and interact more constructively in the political ecology of education (Lloro-Bidart, 2015), which also resonates well with the growing attention to the need to attend to affective dimensions in environmental education (Russell & Oakley, 2016). Whether in film, live performance, or other artistic mediums, we argue a key component for art to be effective in educating for social and environmental justice lies in its ability to incite our imaginations, instead of didactically demanding a certain change. As Maxine Greene (2000) writes, "of all our cognitive capacities, imagination is the one that permits us to give credence to alternative realities" (p. 3). If the arts can help us collectively imagine alternative learning environments, we can begin to forge new/old relations between humans, other animals, land, water, and all the other entities with which we coexist. In our work in and on multispecies worlds, we seek ways to enrich our resilient coexistence, resist anthropocentrism, and employ arts-based methodologies as forms of decolonial pedagogy. We imagine pedagogical futures with ethically just relations between coexisting entities, including the increasingly complex mixtures of life/nonlife, cyborg beings. We imagine.

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PART IV

Interdisciplinary Conversations in Formal and Non-Formal Education

CHAPTER 11

Connecting Animal Cognition and Emotion with Ethical Reasoning in the Classroom

Valerie S. Banschbach and Marwood Larson-Harris

Animals in twenty-first-century America are a ubiquitous part of culture yet simultaneously excluded and marginalized. Though "no area of social life is untouched by animals" (Bryant, 2008, p. 11), for most people their actual contact is limited to pets, plastic-wrapped boneless chicken breasts, and sightings of roadkill, with an occasional trip to the zoo. Our media offers us animated anthropomorphized foxes and sharks, but few people have actually encountered these animals in real life. Hence we live doubly cut off from the lives of animals, experiencing them through the veil of media and the misconceptions generated by pet culture. In this way we experience animals as social constructs (Bryant, 2008). Pets and pigs illustrate this duality; in both cases our own needs transform them into not-quite-animals. On the one hand, pets have become highly modified and anthropomorphized surrogate humans; pigs (and cows and chickens), on

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the other hand, have been turned into machines for producing meat. Pigs exemplify what Bastian (2011) described as the "Meat Paradox." Through literature and movies our culture promotes pigs as cute, yet we subject them to the most horrendous conditions far from the public's eyes. In both cases, the animal is barely visible.

The animal as an entity in its own right is rarely foregrounded, even by scholars and professionals in environmental education, conservation, or ethics (Spannring, 2017).[1] Ethical questions that probe our justifications of the subjugation of animals provide opportunities to connect science with the humanities and expose students to the power of interdisciplinary thinking, potentially leading to a shift in worldview that promotes a more inclusive environmental ethics (Chawla, 2009). While the natural and physical sciences methodologically objectify nature and non-human animals, we can use scientific evidence to prompt us to rethink the paradigms that created such evidence, fostering critical thinking and holding great promise in environmental education (Lloro-Bidart, 2015).

In this chapter, we describe a general education course we developed entitled "Thinking Animals" (as a nod to Shepard, 1998).[2] The course prompts students to consider the moral status of animals as informed by scientific evidence of high-level cognitive abilities and emotional capacities of animals. For this course, we sought a pedagogy oriented toward the animal and the animal-human relationship, rather than one reflecting a particular academic discipline. We wanted students, though a wide-ranging exploration, to develop an open mind, a mind willing to grapple creatively with complexity and contradiction. Where interdisciplinarity often means combining two branches of the humanities or the humanities with social sciences, we saw that more far-reaching connections were needed—namely, between the humanities and the natural sciences.

As outlined below, students were encouraged to pursue multiple perspectives about a chosen species as they explored its cultural significance

[1] We use the term "animal" rather than "non-human animal" throughout the chapter as a means of signifying non-human animal or creature that is "other than human" for shorthand convenience. We recognize that applying the term animal to creatures that are "other than human" privileges the human while failing to acknowledge that humans are animals.

[2] Paul Shepard introduced the "Pleistocene Paradigm" to deep ecology, positing that humans depend on contact with nature and animals in order to develop past an adolescent state and therefore many modern humans in post-agricultural society are trapped in infantilism. He was a Professor of V.S. Banschbach's at the Claremont Colleges.

and then researched what scientific exploration has revealed about that same species. These perspectives were sometimes easily reconciled, sometimes completely divergent from one another. Scientific research helped students peer behind the veil of cultural associations, yet we also examined the scientific approach itself, as a cultural construct fraught with biases (Haraway, 1991). Although interdisciplinarity does not always result in a synthesis, we sought this through an exploration of ethics: here multiple perspectives could coalesce around application, as students used their cultural and scientific perspectives to reexamine animals and animal-human relationships, generating new questions and theses about them.

Goals of the Thinking Animals Course

Our interdisciplinary *Thinking Animals* Course fulfills two requirements in the inquiry-based General Education Curriculum at Roanoke College: the ethical reasoning and public speaking requirements. Roanoke College is a small, private liberal arts college, enrolling approximately 2000 undergraduates and is independent, but affiliated with the Evangelical Lutheran Church in America. Every course in Roanoke's "Intellectual Inquiry Curriculum" has an overarching question designed to serve the broad goals of the college, "Freedom with Purpose" and "Education for Liberation" (Roanoke College, 2015). The two of us who proposed, developed, and teach this course at Roanoke College are V.S. Banschbach, a scientist whose research focuses on behavior and ecology of social insects, and M. Larson-Harris, a scholar whose expertise is in Asian and Native American religions. In the Thinking Animals Course, we fit the overarching theme ("Living an Examined Life") assigned to all ethical reasoning courses and ask: in living an examined life, how do we balance our responsibilities to animals, persons, and the environment? Our inquiry focuses on the moral status of animals and how scientific knowledge influences the formation of values. We also explore cultural forces that play roles (often stronger roles than science) in shaping beliefs and values.

Given that the course fulfills the ethical reasoning requirement in our curriculum, a primary learning objective is for students to become able to define and distinguish among traditions of ethical reasoning, as well as utilize some of the specific ethical frameworks, within these categories, in formulating and evaluating arguments about ethical positions. By virtue of the specific theme of our course, a learning goal is for students to become able to identify the key elements of strong scientific evidence and be able

to distinguish strong scientific evidence from weak. Another learning objective is help students connect our consideration of the moral status of animals with broader anthropocentric and non-anthropocentric traditions of critical reflection for "an examined life," as established in the general education framework for courses in this category.

We framed our pedagogical objectives and assessed them separately from our evaluation of student achievement of the learning objectives stated in the preceding paragraph. Our pedagogical objectives for the course were to draw connections across natural sciences and humanities as ways of knowing, finding points of intersection that inform understanding within disciplinary traditions, and creating new understandings that transgress the boundaries of each area. Our pedagogy was also aimed at engaging students in using science for critical examination of human-animal relationships, including critiquing the dominant paradigm in science for treatment of animals—objectification. We sought to determine whether or not reading scientific studies of animal cognition, and studies of animal emotional capacity, directly influenced students' ethical reasoning. We also wished to evaluate evidence that the course fostered a newfound sense of empathy or ethic of care for the non-human natural world (Goralnik & Nelson, 2015). In this chapter, we will draw conclusions about these last two goals, based on student self-reports of their learning in an assessment instrument we created for the course and administered, allowing students to respond outside of standard course evaluations while still remaining anonymous to us, at the end of each of six sections of the course run over three years.

Structure of the Course

In the beginning of the course, students consider familiar animals, their pets, by examining impressions of emotions, cognitive abilities, and their relationship with these animals, while reading and discussing Marc Bekoff's (2007) *The Emotional Lives of Animals*. Bekoff's (2007) book presents a brief history of Western scientific views of animals, introducing Cartesian dualisms. The text posits that the prevailing scientific paradigm prevents proper, open-minded application of the scientific method to the understanding of animal minds (Bekoff, 2007). As a scientist himself, Bekoff is well-poised to critique science. Nevertheless, some students bristle at the pointed nature of his presentation, while others accept unquestioningly, based on their prior disposition to agree. We use the book

carefully, therefore, to inform specific assignments that involve students bringing in other evidence to evaluate and interpret, beyond the material in Bekoff (2007).

Bekoff's (2007) book is used as a launching point for the two essays we ask students to write about a pet or other highly familiar animal of their choosing. Of the 89 students we have taught during six runs of the course, over three years, none of the students has had difficulty identifying a familiar animal to use for the exercises; all but a few have written about their own pets. In the rare cases of students who tell us they have never had a pet or farm animal they knew well, we encourage them to write about another familiar animal, for example, a pet of a relative, friend, or neighbor. The first essay assignment prompts students to provide examples of their pet's emotions, the student's perception of the pet's emotions, and the emotional dimensions of their bond with their pet. They are invited to write intuitively, based on their own experiences, but asked to connect their examples with the definition of emotion provided in Bekoff's (2007) book and discussed in class. We prompt students to draw parallels with some of the many examples of animal emotions offered by Bekoff (2007) for a wide range of species. Students share their essays, or some self-selected themes from therein, with other students, in pairs or small groups, before we open out the discussion to the entire class. The essays have often been quite personal with students sharing that, in some cases, their pet has filled an emotional gap in their childhood left by inattentive or dysfunctional parents or families. Other essays were intentionally comical with students reveling in sharing the antics of their animal companions, behaviors they interpret as aimed at providing them and their families with joy. This first essay has proven to be an excellent way to engage students in thinking about their interpretations of emotions of animals and their emotions toward animals. It has also allowed us to gain our students' goodwill toward challenging work that lies ahead.

The second pet essay occurs later in the course, but also employs Bekoff's (2007) book as an aid. The goal of this essay is for students to analyze their familiar animal's behavior from the standpoint of ethology, the biological study of behavior in an evolutionary context (Tinbergen, 1963). We ask students to choose a single, common behavior of their pet and describe it, in great detail, in the painstaking, non-interpretive style of classical ethology, avoiding speculation about function or intent, in favor of meticulous observation. The founders of ethology labeled this practice of describing the basic form of a behavior, an "action pattern," as an essential basis for

further investigative study of behavior (Tinbergen, 1963). We practice this method in class by using video of a group of dogs engaged in social play and by working with accounts of dog behavior provided by Bekoff (2007). Once this exercise is completed, we prompt students to compare and contrast the cautious and methodical approach of scientific description of animal behavior with the students' own earlier casual observation and intuitive reasoning about behavior of their pets. Through the practice of attempting to describe behavior in factual terms without making assumptions about motives, we gain an opportunity for the class to discuss the pros and cons of the scientific prescription against anthropomorphism.

The pet essays use familiar animals to help expose the chasm between intuitive reasoning about animal emotions and the analytical methods of the science of ethology, revealing logistical reasons for why scientific study of animal emotions has progressed so slowly. We next employ other assignments to move away from the intimate animal, innately viewed as a companion, friend, sibling, or child, toward learning about less familiar, less directly experienced animals whose emotions are not assumed by our students.[3] We ask students to choose an animal species to research throughout the semester in terms of both cultural meanings applied to that animal by humans, and scientific findings of its emotional or cognitive capacities, thus broadly investigating animal-human relationships for the chosen species. Before students are asked to select their focal species, we have exposed them to scientific and cultural literature dealing with a broad phylogenetic range of species featuring many invertebrate animals (V.S. Banschbach conducts research with social insects such as ants and honey bees) in an effort to encourage students to select species beyond the familiar mammalian and avian choices.

Learning about animals with widely varying sensory and cognitive physiologies allows us to begin breaking down the monolithic category of "animal" in the classroom (Derrida & Wills, 2002). For example, we study pessimistic bias in bees, reading the original research report that demonstrates the phenomenon using an experimental paradigm modified for bees but parallel in most respects to that used in similar studies of dogs (Bateson,

[3] And Bekoff (2007) prompts us to consider other reasons why the scientific study of animal emotions has progressed so slowly: namely the threat to use of animals in research, particularly animals kept in laboratories, but in our practice in ethological study, we learn what the methodological limitations to progress are.

Desire, Gartside, & Wright, 2011). We discuss tool use by ants (Banschbach, Brunelle, Bartlett, Grivetti, & Yeamans, 2006), after learning that Goodall's description of tool use in chimpanzees was one of her many lines of evidence that chimpanzees transgress the boundary developed by philosophers for human versus non-human animals (Goodall, 1968).

Because this course fulfills the "public speaking" requirement in the "Intellectual Inquiry Curriculum" at Roanoke College, we assign two oral presentations on the chosen species for each student to give to the rest of the class. We ensure that each student in a given section is researching a different animal species so that across each course section, a variety of different animals will be studied. First, the students prepare a five-minute presentation placing their chosen species in any cultural context they wish to select. Second, they give a 20-minute oral presentation focusing on a scientific journal article presenting results of a study demonstrating high-level cognitive or emotional capacities of their chosen species and critiquing the evidence presented therein. We try to help students choose animals for which there will be a good selection of peer-reviewed scientific studies of cognition or emotional capacities for them to choose from for their major oral presentation. Usually, finding cultural ties for their chosen species is not difficult for students, given that we allow the students to choose any cultural perspective, from any time period, modern or historic, that appeals to them. Frequently chosen species include elephants, tigers, octopi, sharks, horses, ravens/crows, dogs, dolphins, and orangutans.

The cultural angles students explore for their chosen species often relate to symbolism in religion and literature or depiction in popular media and advertising, but some focus on modern environmental conservation efforts or economic value. We encourage use of a broad spectrum of published source material for the exploration of cultural roles. Listening to all of the presentations in the class, covering a wide range of different cultural perspectives, exposes students to the idea that our relationships with animals are culturally situated, an important theme in critical scholarship of environmental education (e.g., Pacini-Ketchabaw & Nxumalo, 2015; Russell & Semenko, 2016). We then move toward the scientific presentations therefore our sequencing of work in the course makes the point that Western science is yet another culturally based way of knowing to be explored and used to inform ethical reasoning (Logan & Russell, 2016).

Students begin the scientific work with their species using Virginia Morell's (2013) *Animal Wise*, a writer's look into the work conducted in a range of ethological research labs. They then progress to work with peer-

reviewed scientific journal articles investigating cognitive and emotional capacities in non-human animals. The main challenge of this part of the course is assisting non-science majors in reading and interpreting the scientific literature. We work closely with students to help them choose accessible research reports and then spend much time working individually with students to assist them with interpretation and critique of the journal articles.

While the work with the chosen species progresses from cultural examination to scientific, and the pet essays move from impressions of emotions to ethological analysis, we are also simultaneously spending class time building knowledge of different traditions of ethical reasoning. We use Traer's (2013) text *Doing Environmental Ethics* as the idea of defining moral communities, Kant's framing of duty toward others based upon rationality of others, new ethical reasoning traditions based on empathy (e.g., ecofeminism), and integrity (e.g., the non-anthropocentric deep ecology), as well as consequential ethical reasoning (e.g., utilitarian ethical reasoning). We consider human and non-human rights and definitions of "legal person" and "legal thing," highlighting work such as that of Steven Wise, who uses scientific evidence of high-level emotional and cognitive capabilities of chimpanzees to advocate for their legal person status in the courts of law (as described in Dobnik, 2017). As we introduce each method of ethical reasoning, we work with students to help them consider how scientific evidence might influence their ethical reasoning about animals used for food, companionship, entertainment, research, and security. For example, asking: if studies of elephant problem-solving demonstrate rationality then, following Kant, do we have a duty toward elephants? If so, how would that duty be best expressed?

To help students connect the ethical reasoning with the specific information they are learning about animal emotional and cognitive capabilities, we use a worksheet methodology from Robert Traer's *Doing Environmental Ethics* (2013). The method mirrors the scientific method in some respects. First, students construct an ethical presumption about a common current situation that may cause animals pain, suffering, or other harm. An ethical presumption is a declarative statement about what action the student and/or others should take regarding the situation and how this action should be taken. Students may choose to declare a personal action or they may choose to deal with a situation outside of their immediate locus of control (e.g., dogs used by the US Military). Next, they must provide scientific or other evidence for claim of pain, suffering, or whatever mental and emotional harm they describe. They must then engage in ethical reasoning, involving specific kinds of traditions covered in class, applied to the situation at hand.

For each worksheet assigned, we instruct students to grapple with a different method of ethical reasoning, for example, duty or ecofeminism. The next section of the worksheet involves conducting a thought experiment to test the effects of their line of reasoning. Students must consider positives and negatives regarding the presumption. After listing those, they are prompted to make a final decision to support or reject the presumption (modified from Traer's *Doing Environmental Ethics*, 2013).

For the final exercise in the course, we ask the students to produce a synthesis paper integrating cultural and scientific perspectives on their chosen animal species, and then applying ethical reasoning traditions of their choice, to come to some novel conclusions about their animal species and framing human behavior toward it.

Outcomes

To determine how the course impacted the attitudes of our students toward animals, we surveyed students ($n = 89$) in six sections of the course, taught over three years.[4] Students voluntarily participated in the survey and their responses were anonymous to us; no incentives were provided to participate although class time was used to administer the survey. We designed the survey ourselves, and it was wholly separate from the standard course evaluations given online at the end of each semester at Roanoke College (and not discussed here). We evaluated the data using inductive analysis (as in Thomas, 2006) to identify emergent themes, to understand students' perceptions of what they learned from different assignments in the course and their perceptions of changes in their attitudes.

We hoped to address questions about relationship between gender of student participants and pedagogical outcomes, but this proved problematic due to the sample size issue associated with a much larger number of women enrolled in the course than men (Table 11.1). The enrollment in the class was consistently 2:1 women: men for the first two years of the course, while the sex ratio among all students enrolled at the college was closer to 1.5:1 women: men. However, in Spring 2017, the enrollment became much more drastically skewed toward women, with the sex ratio across the two sections offered 6:1 women: men. During that semester, M. Larson-Harris taught both of the two sections of the class. It is impossible to untangle whether the sex-ratio bias was due to the growing reputation of the class on campus,

[4] Roanoke College IRB Approval #16115.

Table 11.1 Student population in Thinking Animals Course sections

	2015		*2016*		*2017*	
Instructor	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
V.S. Banschbach	5	8	3	13	–	–
M. Larson-Harris	5	13	7	7	4	24
Totals	10	21	10	20	4	24

Grand totals: $N = 89$, $M = 24$, $F = 65$

therefore attracting a specific pool of recruits strongly interested in the topic and that pool is mostly women, or whether the sex-ratio bias represented a gender-based preference for an individual faculty member, having less to do with the topic of the class. None of the 89 enrolled students self-identified as non-binary gender.

Learning About Ethical Reasoning

Although we had a broader agenda in terms of our hopes for the outcomes of this course, the main purpose of the course in the "Intellectual Inquiry Curriculum" of our College is teaching ethical reasoning. Therefore, we began, in our survey of student outcomes, by asking students to "Describe one theory or point from our discussions or reading about ethical reasoning that was new and thought-provoking for you." While small percentages of students reported that nothing was new to them, or everything was new to them (mean "nothing" = 5.08%; mean "everything" = 7.89%) averaged across all six sections of the course, many students did choose particular concepts we discussed as being "thought-provoking" (Table 11.2).

The most frequently cited kind of "thought-provoking" ethical reasoning by students was utilitarianism (Table 11.2), a form of consequential reasoning, proposed by David Hume, then refined and advocated for by Jeremy Bentham and John Stuart Mill (as cited in Traer 2013, the textbook for our course). Students came to understand this according to the summary of Mill (1998) that we should strive to "achieve the greatest good for the greatest number of people" (Mill as cited in Traer, 2013). We suppose this concept resonated with students due to its ease of comprehension, ready application to current ethical dilemmas, and secular nature. In the open-ended response section of the survey, one student summarized our current thinking about use of animals (and justification for their use as meat, pets, entertainment, etc.) noting "I thought it was interesting that

Table 11.2 Student self-reported learning about ethical reasoning: percent responses, $N = 89$

Survey question: *Describe one theory or idea from our discussions or reading related to ethical reasoning that was new and thought provoking for you*				
Response	*2015*	*2016*	*2017*	*Mean*
Utilitarianism	33.33	26.92	14.29	24.85
Ecofeminism	14.81	0.00	28.57	14.46
Deep ecology	18.52	0.00	14.29	10.94
Historical change, ethical views of animals	0.00	7.69	21.43	9.71
All formal ethical reasoning was new to student	7.41	15.38	3.57	8.79
Duty, as per Kant	11.11	11.54	0.00	7.55
Empathy with non-human animals	0.00	15.38	7.14	7.51
Nothing was new to student	3.70	11.54	0.00	5.08
Idea of a moral community	3.70	7.69	3.57	4.99
Buddhism	7.41	0.00	0.00	2.47
Meat paradox	0.00	0.00	7.14	2.38
Hinduism	0.00	3.85	0.00	1.28
"Legal thing" versus "legal person"	0.00	3.85	0.00	1.28

the Utilitarianism theory is the one that we (as humans) use the most often when thinking about animals." Interestingly, the conclusions that follow from applying this form of ethical reasoning to thinking about how we interact with animals changes entirely when animals are foregrounded and included in our moral community. The paraphrase from Mill's *Utilitarianism* (1998) would become to "achieve the greatest good for the greatest number of *beings*," a principle that would change our behavior in many situations involving animals quite dramatically, a shift that most students seemed hesitant to grapple with in our class discussions and their ethical reasoning worksheets.

In addition to Utilitarianism, many students expressed interest in ecofeminism and deep ecology (Table 11.2), in 2015 and 2017. Those two years were also the years in which fewer students reported that all ethical reasoning was new to them than 2016 (Table 11.2), so perhaps those students were more able to think beyond the simpler mechanisms for ethical decision-making. About ecofeminism, some representative statements by students included, "I thought the eco-feminism theory was interesting. It is basically the idea that both animals and women are oppressed by the patriarchy. I never thought about how the idea of feminism and the patriarchy could apply to animals and science." And, "I thought ecofeminism was really interesting. I honestly never really thought that could be a thing

until this class." Both quotes, and others we received, reflect the prevailing lack of exposure of students in K-12 schools in the USA to any ideas from ecophilosophy. Similarly, about deep ecology, one student noted, "The theory of deep ecology was new to me. Since it is ecocentric, it was very thought provoking to me because it caused me to consider the environment and ecosystem in addition to people." Notably, this particular student did not specifically include animals in the statement about deep ecology and we noted, in our class discussions, many students found deep ecology so challenging to grapple with that a specific discussion of animals within that framework was not achievable for us in the limited time we had.

Changes in Thinking About Animals

By adopting an interdisciplinary approach that engaged students in thinking about cultural perspectives and scientific evidence about emotion and cognition of animals, we supposed some students might change their ideas about the abilities of animals. Regardless of whether or not this influenced how students applied ethical reasoning traditions to animals, we wondered if the evidence itself led to any reconsideration of animals.

We asked students if their opinion of the emotional abilities of animals changed as a result of the work in our course. Most students, in each of the first two years of the course, responded that their opinion changed and they wrote that they learned about emotional abilities of animals that were on par with those of humans (Fig. 11.1; 2015: 64%; 2016: 81%). But in 2017, when Religious Studies faculty member, M. Larson-Harris, taught both sections of the course, only 40% responded affirmatively. In all three years, most of the students who did not reply affirmatively to this question noted that they answered "No" because they already knew that animals have emotional capacities on par with those of humans, with 5% or less, each year, answering "No" because they did not think animals have emotional capabilities (Fig. 11.1). These results have some noteworthy possible interpretations. First, it is interesting that so many students seem quite confident in judging emotional capabilities of animals on their own, yet those same students, in our discussions revealed that they have not connected their observations of emotional capabilities of animals with any compulsion to change their treatment of animals, a disconnect that parallels the gap between knowledge and action found in other kinds of environmental education (Kollmuss & Agyeman, 2010; Russell, 1999; Stevenson, 2007). Second, the difference between 2017 and the previous two years, in how strongly students reported being convinced by the scientific evidence, may relate to

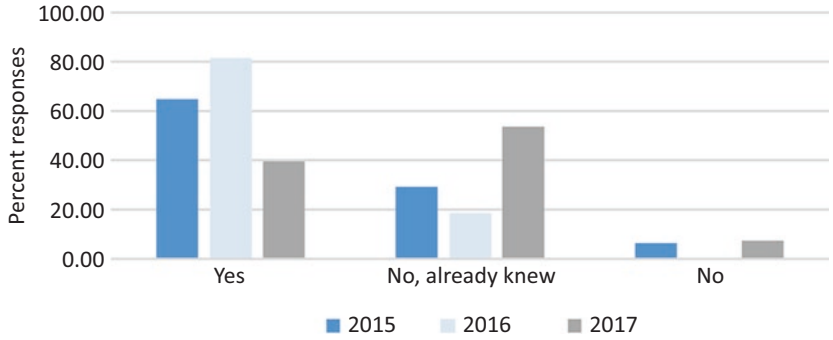

Fig. 11.1 Student response to the survey question, "Did your opinion about the emotional abilities of animals change in any way due to the course?"

the impacts of having a scientist present the work (as instructor) versus having a highly competent professor in another field (Religious Studies) as presenter and guide for the scientific evidence.

The student reports of their change in opinion (or lack of change in 2017) about the emotional abilities of animals, due to the course, contrast with more affirmative student reports of their learning about cognitive abilities of animals in the course (Fig. 11.2). In all three years, a strong majority of students (Fig. 11.2; between 81% and 90%) reported that their opinion about the cognitive abilities of animals changed as a result of the course. What may be most noteworthy about this is that the students are not distinguishing between human and animal "other" in asserting their confidence in reading emotions, but seem to want or need scientific validation before being willing to attribute cognitive intelligence to animals.

We wanted to understand how students connected any reported change in their perception of animal emotion and cognitive abilities with their reasoning about the moral status of animals. We asked students "Did your reasoning about the moral status of animals change in any way as a result of this course?" The results closely followed the proportions for the question about change in opinion of animal emotional capacities (Fig. 11.3) in that most students in 2015 and 2016 reported a change and commented that the change was in the direction of granting animals higher moral status. In 2017, however, more students noted that they already granted animals a high moral status, more on par with their view of humans, and 10% of students in 2017 answered that they did not change their opinion that animals did not deserve elevated moral status on par with humans.

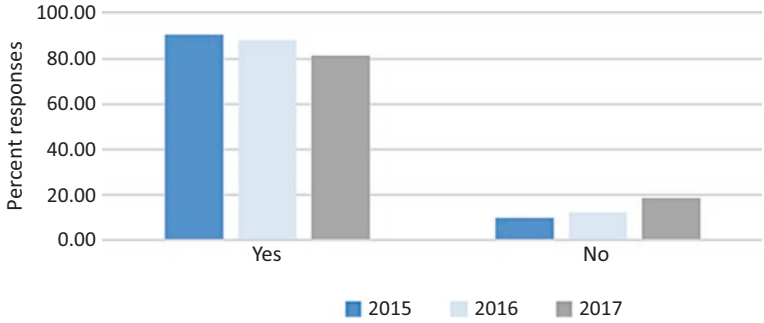

Fig. 11.2 Student response to the survey question, "Did your opinion about the cognitive abilities of animals change in any way due to the course?"

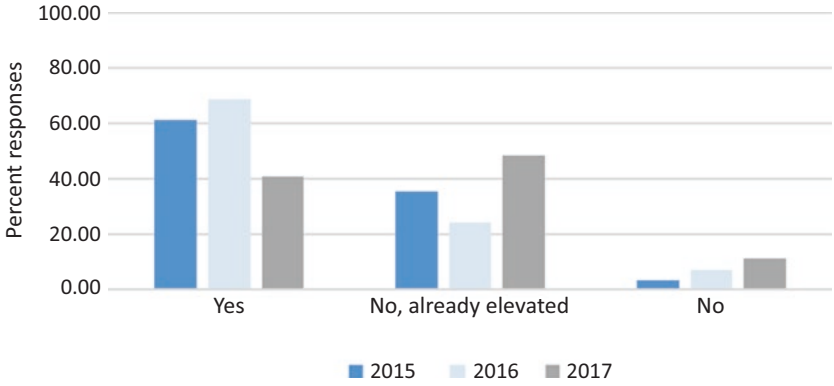

Fig. 11.3 Student response to the survey question, "Did your reasoning about the moral status of animals change in any way as a result of this course?"

This was the year in which the scientist was not an instructor in the course, but it was also the third year the course had been offered, perhaps allowing students who enrolled to have a better sense of the course content and therefore attracting more students who had particular background in the topic, making the course itself less revelatory for them.

In our final survey question, we gaged the overall effectiveness of the approach of the course. We asked, "In your opinion, was the course approach successful?" In each year, more than 80% of the students responded affirmatively (Fig. 11.4).

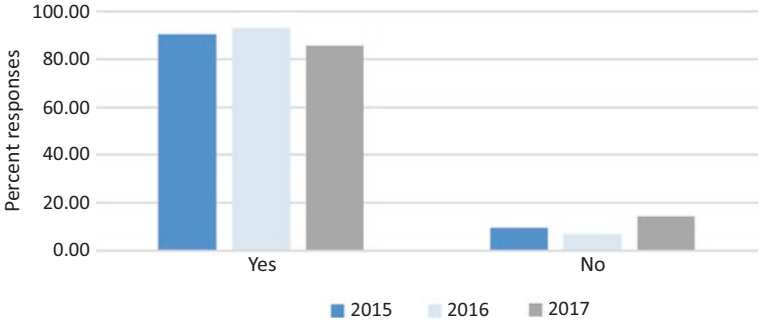

Fig. 11.4 Student response to the survey question, "In your opinion, was the approach of the course successful?"

Conclusions and Implications for Environmental Education

Students reported that their reasoning about the moral status of animals changed as a result of the course, as their knowledge of both the cognitive and emotional abilities of animals increased. Exploring scientific evidence of animal emotion and cognition was noted as challenging by the students, "I believe the research method was very challenging, but at the same time very useful in informing animal ethics and relationships. I learned a lot more than I intended to." Some students also stated that they drew a link between learning about scientific evidence of emotion and cognition and empathy with animals. "Discovering the abilities of the animals enabled me to form a personal connection with the course and them." Specifically, students noted feeling "a duty to protect animals due to their cognition" and reported that "knowing the extent of animal intelligence was a fantastic way to inform ethical reasoning."

While we were pleased that students reported that learning about scientific evidence of animal cognition, and, to a lesser extent, studies of animal emotional capacity, directly influenced their ethical reasoning, we perceived a disconnect between these self-reported changes in attitudes of our students versus their expressed willingness to change behaviors that negatively impact non-human animals. Discussions of vegetarianism and factory-farming of meat fell particularly flat, with very few students being willing to engage, perhaps for the reasons articulated by Darst and Dawson (2019), in another chapter of this book. We spend very little time in the

course discussing political and governmental mechanisms that could promote animal welfare and rights. Chawla and Cushing (2007) concluded that to help students connect knowledge and attitudes with pro-environmental behaviors, environmental educators need to engage students in a classroom built around democratic principles, an environment in which students not only learn actively but also engage as citizens in their community. A community-engaged learning project might be an excellent addition to future offerings of this course, providing more opportunities for both action for the common good and moral self-authorship.

One of our hopes for this course was that our work would lead to a newfound sense of empathy or ethos of care for the non-human natural world, animals, and beyond. We found little direct evidence of this (e.g., Table 11.2), but our survey did not directly ask about this, using these words, as we did not wish to lead students on by mentioning these concepts specifically in our questions to students. However, we discussed these ideas in class in relation to creating a new paradigm, one that rejects the limits placed by both scientific method and cultural expectations on our thinking about and relationship with animals. The interspecies paradigm (Oakley, 2012) focuses our thinking on moving beyond the human in environmental education. Moving away from anthropocentrism and Cartesian dualisms would open the door to making progress on environmental issues by prompting recognition of other animals, other organisms, and an ethos of care (Goralnik & Nelson, 2015; Russell 2005). This shift would also allow us to acknowledge the power and potential for non-human agency in nature (Low, 2002).

From our work in this course, we can conclude that because our relationships with animals are so entangled in complex and often ancient cultural traditions, in centuries of associations and the resulting habits of thought (Sax, 2001), our students, representative of people broadly, are locked into fairly rigid categories when they think about animals. They have developed rich relationships with one or more pets, which they consider as individuals with emotions as rich and distinct as their own, but they find it hard to generalize this experience to imagine other animals as having cognitive or emotional lives, or to see them as individuals. Our interdisciplinary approach gave us some new momentum to push through this inability to resolve deep contradictions, to clarify our confusion and challenge our assumptions, moving beyond the narrowness that has left our views of animals masked by traditional, disciplinary discourses.

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CHAPTER 12

Putting Meat on the (Classroom) Table: Problems of Denial and Communication

Robert G. Darst and Jane I. Dawson

Why It Is Hard to Teach About Meat

We never set out to teach about meat consumption. We were trained in international relations, comparative politics, and environmental policy; for most of our careers, animals appeared in our classes either as subjects of environmental concern (whales, dolphins, endangered wild species) or as abstract "macro" sources of environmental degradation ("non-point source nutrient runoff," a fancy term for water pollution caused by livestock manure). Until the late 2000s, it never occurred to either of us that meat consumption might be a socially and psychologically unique driver of environmental degradation—not, that is, until we began to pay more attention to it in our classes.

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Our interest in meat consumption was triggered by the publication in 2006 of *Livestock's Long Shadow*, a report by the United Nations Food and Agriculture Organization (FAO). *Livestock's Long Shadow* was the first widely read study to reveal the full extent of the livestock industry's contribution to global climate change. The FAO calculated that animal agriculture was responsible for *18 percent* of global greenhouse gas emissions—more than all forms of transportation combined, and considerably more than most observers had previously imagined (FAO, 2006). A subsequent report, using a different methodology, reached a figure of 14.5 percent (FAO, 2013). Either way, animal agriculture is the largest contributor to climate change of any industrial sector, and second largest source in general, behind only energy use by buildings. Animal agriculture is also a major source of air, soil, and water pollution, as well as animal suffering (Pew Commission, 2008).

When we began in the late 2000s to raise the environmental impact of meat consumption in our classes, many students responded with an odd black-and-white absolutism. A common response to the presentation of the FAO's findings was, "I couldn't possibly become a vegetarian"—out of the blue, even though neither the FAO nor the instructor had suggested that vegetarianism logically followed. Even when we went out of our way to stress the practical effectiveness of *reduced* meat consumption, students would say, "I couldn't possibly cut back on meat."

We found this absolutism odd, because it did not arise with respect to *other* forms of environmentally problematic consumption. When discussing transportation, our students did not say, "I couldn't possibly ride a bicycle everywhere I need to go"; they understood that this is not an either/or choice. Nor did they declare, "I couldn't possibly reduce the number of vehicle-miles I travel." They might say this would be *hard*, but they approached it as a challenge to be solved, not an impossibility to be rejected out of hand.

We also learned that raising the negative externalities of meat consumption can be a discussion-killer, especially in large classes. Compared to other forms of problematic consumption, students are reluctant to talk about meat. Raise the topic of conventional versus electric cars, and a class of 60 will be abuzz for an hour. But raise the topic of meat, and most students will adopt a sullen, frowning silence as if they were victims of personal attack. This is doubly odd, since dietary modifications are the easiest and cheapest way for most individuals to reduce their personal ecological footprint, especially in comparison to changing their transportation patterns.

One of the symptoms of this sullen silence is that few students self-identify as sufficiently concerned to change their meat consumption patterns. A common discussion-ending tactic is to declare meat consumption a "personal choice," as if the issue had no more social import than a preference for Beethoven versus Beyoncé. Again, this is very different from other environmental issues: these same students are perfectly happy to insist that *everyone* should recycle more, that *everyone* should drive less or drive more fuel-efficient cars, and that *everyone* should reduce their water consumption. What gives?

Our puzzlement led us to examine the literature on psychology of meat consumption. At the same time, we began to understand how the growing literature on the denial of climate change also illuminated the psychological, social, and political processes at work in the denial of meat consumption's negative effects. In this chapter, we will explain how those two bodies of research illuminate both the difficulties and opportunities involved in teaching about livestock agriculture. We will then present the experiences of four instructors who sought, with varying degrees of success, to translate this research into classroom strategies and lesson plans. We conclude that it is possible to introduce the negative externalities of industrialized livestock agriculture without triggering students' denial mechanisms, provided that the instructor avoids immediately linking the problems involved to the decision to eat meat in and of itself. This strategy is less useful, however, if the instructor's primary goal *is* to subject meat eating itself to critical scrutiny.

The Meat Paradox

Studies of the psychology of meat consumption demonstrate that omnivores tend to respond defensively to *any* suggestion—even an *implicit* suggestion—that meat consumption is in any way problematic. In the literature, this phenomenon has been dubbed the "meat paradox": most people who like to eat meat do not like to harm animals, especially animals with thoughts and feelings. The result is cognitive dissonance. This dissonance can be reduced by altering one's consumption habits, but more common responses are justification of the necessity of meat consumption, the denial of meat consumption's negative effects, and denigration of actual or suspected critics (Bastian, 2011; Bastian & Loughnan, 2017). Because such a rich inventory of avoidance strategies is available, meat eaters may respond to cognitive dissonance with a "cascade of denial," adopting another when others are perceived to fail (Bastian & Loughnan, 2017).

Justifications

The more that meat eaters are prompted to consider the negative consequences of meat production, the more likely they are to advance and endorse justifications for meat consumption. Conversely, the more that individuals endorse these justifications, the more likely they are to deny or minimize the negative consequences of meat production. The most commonly advanced justifications have come to be known as the "4 Ns": eating meat is natural, normal, necessary, and nice (Graça, Oliveira, & Calheiros, 2015; Piazza et al., 2015).

Denial of Negative Effects

A consistent finding in this literature is "denial of mind": participants prompted to think about eating meat are more likely to deny the cognitive and emotional capacities of livestock animals, to view these animals less favorably, and to demote them as subjects of moral concern (Bastian, 2011; Bratanova, Loughnan, & Bastian, 2011; Bastian, Loughnan, Haslam, & Radke, 2012; Piazza et al., 2015; Rothgerber, 2015). This denial extends to other negative consequences as well. With respect to climate change in particular, a strong attachment to meat consumption is associated with skepticism about the link between livestock agriculture and climate change and the belief that changing non-food-related behaviors is a more acceptable and more important approach to climate change mitigation (Macdiarmid, Douglas, & Campbell, 2016).

Anticipation and Derogation of Critics

Actual or anticipated criticism engages the meat paradox and its associated avoidance strategies. In one study, participants asked to read about a vegetarian were more likely, compared to participants asked to read about an individual on a gluten-free diet, to respond with denial of animal mind, defense of the necessity of meat consumption, and lower self-reported meat consumption. This preemptive response to "anticipated moral reproach" is stronger if the hypothetical vegetarian is *voluntary* and *consistent* (Rothgerber, 2014). Meat eaters may also respond to anticipated reproach by denigrating their perceived critics. For example, meat eaters who anticipate moral reproach from vegetarians are more likely to report negative feelings toward vegetarians as a group (Minson & Monin, 2012).

Meat eaters work aggressively to maintain social acceptability of meat consumption by publicly ridiculing and questioning the motives and logic of vegetarians, and interpreting any rejection of meat consumption as a rejection of family and cultural traditions (Minson & Monin, 2012; Rothgerber, 2014). Even *less than expected* consumption can engage defensive behaviors: in one study of Swedish middle schoolers, a girl who took one slice of ham instead of the usual two was teasingly asked, "Are you a vegetarian?" prompting an indignant denial (Bohm, Lindblom, Åbacka, Bengs, & Hörnell, 2015).

In the face of such tactics, those who have chosen to significantly reduce or eliminate their meat consumption respond with conflict avoidance strategies. These include "passing" as meat eaters, including eating meat when it would be awkward to avoid it; invoking motives of health or taste; and insisting that the reduction or elimination of meat consumption is a "personal choice," not a social imperative (Jabs, Sobal, & Devine, 2000).

Gender Differences

The interpersonal politics of meat are highly gendered. Women—especially young women—are less likely than men to enjoy eating meat, more likely to find meat disgusting, more likely to restrict their meat consumption, and more likely to respond to cognitive dissonance by either changing their consumption practices or by avoiding discussion of the issue (Pohjolainen, Tapio, Vinnari, Jokinen, & Räsänen, 2016; Ruby et al., 2016). Men, by contrast, associate meat with masculinity. In one study, Canadian teenagers were asked to attach "personalities" to different kinds of food. Both boys and girls agreed that meat was an adult male, but there the similarity ended. Boys said that meat would be muscular, popular, and surrounded by girls, whereas the girls described meat as a "fat, bald old man sitting at the bar" who "always smells bad" (Elliott, 2014).

Men are much more likely to respond to criticisms of the meat industry with justifications such as biological necessity and the denial of animal mind; they are more likely than women to ridicule vegetarians and other perceived critics; and they are less likely than women to favor footprint-reduction strategies such as meat reduction and buying local or organic (Elliott, 2014; Graça et al., 2015; Pohjolainen et al., 2016; Rogers, 2008; Rothgerber, 2013; Ruby et al., 2016). The intensity of this gender difference is strongest in cultures that emphasize more traditional framings of masculinity (Schösler, de Boer, Boersema, & Aiking, 2015).

Effect of Urbanization

Studies indicate that the intensity of the meat paradox grows with urbanization and the industrialization of livestock agriculture. For example, in a recent comparative study of the meat paradox in France and China, participants were presented with either a condition that emphasized the slaughter of a cow or a diagram of a cow as meat. In both countries, participants presented with the slaughter information reported a lower willingness to eat beef, but only in France did the participants also respond by attributing less mind to cows. The authors attributed this difference to the fact that Chinese participants were more likely to have grown up in rural areas where slaughter was less industrialized than in France, and so were more familiar with the process (Tian, Hilton, & Becker, 2016).

These findings illuminate the odd responses of our students. First, *any* critical examination of meat consumption engages the psychology of the meat paradox, *even if issues of animal sentience and suffering are not explicitly raised*. The typical student thus moves quickly to deflect the issue, rather than to confront the underlying ethical dilemma. Thus the strange reaction of "I couldn't possibly be a vegetarian": framing meat consumption as all or nothing, and so dismissing it, is psychologically more comfortable than considering it in detail.

Second, meat consumption engages deep anxieties about personal identity (including gender identity) and social interaction, which hampers open discussion. The young people in our classes—especially the young men—look as if they are being attacked because they really *feel* attacked. The young women, although statistically most likely to feel concern about meat consumption, are also the least likely to argue the point—either because they have learned to avoid controversy or because they prefer to avoid consideration of the issues involved. As a result, meat consumption is a socially and psychologically unique driver of environmental degradation. We have learned that we cannot address transportation on Monday, energy production on Wednesday, and animal agriculture on Friday, and expect the students to respond in the same manner.

The psychological and interpersonal difficulties associated with meat consumption are not limited to the classroom. First, the social dynamics described above—the pressure upon peers to conform to expected norms of meat consumption and the public stigmatization of those who do not—are also at work in student residences and dining halls. For most students, these dynamics will be all but invisible, but for those who

violate the norms, this stigmatization cannot contribute to a sense of belonging or campus community, unless it be with other students similarly stigmatized.

Second, the meat paradox confounds efforts to reduce meat consumption on campus, whether these efforts are driven by health concerns or our pledges to reduce our carbon footprint. Campus dining services across the world, tasked with operationalizing these noble goals, are routinely flummoxed by the disinterest and hostility generated by campaigns such as "Meatless Mondays," in large part because neither the planners nor the consumers understand the complex psychological and interpersonal tensions that underlie the seemingly mundane practice of meat consumption.

Lessons from the Study of Climate Change Denial

One of the most puzzling features of the politics of climate change, and one of the most problematic for public policy, is the persistence of widespread denial despite near-universal scientific consensus that global warming is real, caused primarily by human activities, and exceedingly dangerous. Studies of the sources and nature of this denial shed a great deal of light on the equally widespread denial of the negative consequences of industrialized livestock agriculture. The cornerstone finding of the climate change denial literature is that *denial is not the result of insufficient information*. In the initial stages of the emergence of climate change as a public policy issue, climate scientists and other advocates of prompt action assumed that public denial of the problem was caused by ignorance of the science, and so emphasized wider and more effective communication of the science. Paradoxically, however, subsequent studies have demonstrated that greater exposure to climate science does *not* lead to greater concern about the issue. On the contrary, the provision of additional information—and, indeed, greater individual scientific literacy in general—actually *reinforces* denial among individuals already predisposed to dismiss the problem (Kahan et al., 2012).

If climate change denial is not caused by insufficient scientific information or understanding, then what does cause it? In part, denial and avoidance can be attributed to the poor fit between the characteristics of climate change and human psychology. Humans are predisposed to attach great salience to dangers that are immediate, abrupt, novel, external, and intentional. Climate change, by contrast, is a gradual process that involves the intensification of longstanding dangers, such as flooding, storms, and droughts; its most severe consequences remain uncertain in both time and

space; and it is unintentionally caused by our own familiar everyday actions, as opposed to a radically new technology or the evil machinations of an identifiable external foe. Thinking about the problem is compounded by the broad distribution of responsibility for it. The wide diffusion of responsibility easily leads to the bystander effect (someone else will take care it) or feelings of helplessness (the problem is too big to be solved), while participation in causing the problem invites unpleasant feelings of guilt that cannot easily be assuaged through individual action (Marshall, 2014; Norgaard, 2009, 2011).

That being said, individual psychology is insufficient to explain the intensity, distribution, or resilience of climate change denial. Climate change denial is *socially organized*, more the product of social interaction than of independent individual perception. The literature on climate change denial identifies two main processes by which this social organization takes place. First, different social groups have "encoded" information about climate change very differently, so that one's position on this issue has become a marker of group identity. The second process is "socially constructed disattention," in which communities tacitly agree to avoid discussion of an uncomfortable issue, particularly one that raises awkward questions of complicity and responsibility.

In general, people are predisposed to obtain information from individuals whom they trust and from media outlets that share their worldviews. Since different people move in different social circles and consume information from different media outlets, apparently "objective" information can take on very different social coding or meaning. Thanks in large measure to the highly successful "denial industry" organized in the 1990s and 2000s by the oil industry and conservative advocacy groups (Oreskes & Conway, 2010), one's position on climate change has become a marker of group identity. Those on the "conservative" team are expected to dismiss the problem, while those on the "liberal" team are expected to evince greater concern about it. Once divergent positions are integrated into group identities in this way, they become much more resistant to countervailing information, especially information that comes from outside of one's trusted group (Kahan et al., 2012; Marshall, 2014). This process accounts for the surprisingly robust persistence of outright climate change denial—that is, claims that climate change is not occurring, or that it is not caused by human activities—despite overwhelming scientific consensus to the contrary.

Socially organized disattention is a more subtle social process that transcends group identity. Because climate change invites difficult questions about individual responsibility and lifestyle, it is not considered to be a polite topic for ordinary conversation. Knowledge that the issue is "controversial" and therefore likely to lead to friction reinforces this norm. Socially organized disattention also requires inattention to the taboo itself: as Zerubavel (2006) observes, "In other words, the very act of avoiding the elephant is itself an elephant! Not only do we avoid it, we do so without acknowledging that we are actually doing so, thereby denying our denial" (p. 53). This process helps to perpetuate a more subtle form of denial: not *literal* denial of information about climate change but *implicatory* denial: avoidance of the implications of that information for one's own behavior and lifestyle (Cohen, 2001; Norgaard, 2009, 2011). A corollary of both group polarization and socially organized disattention is the "false consensus effect": the most vocally defended positions appear to be more widely shared than they actually are. This may lead people who do not share those positions to believe themselves to be in the minority, thus increasing the incentive to remain silent, even though in fact their own position is more widely shared, and the loudly proclaimed positions less widely shared, than they realize (Marshall, 2014).

This literature offers a wealth of recommendations for communicators seeking to convince people of the dangers of climate change and the need to take action now (CRED, 2009; Marshall, 2014; Norgaard, 2009; Wibeck, 2014). A small sample includes the following:

- Emphasize what is happening here and now, as opposed to what might happen at some point in the future. In particular, emphasize local impacts familiar to the audience.
- Because people are more sensitive to losses than gains and to losses in the recent past or present than to losses in the future, frame climate change as a way to restore past losses, whether social or environmental.
- Create a narrative of positive change, not a future of rationing or denial. Build on positive stories of success and stress co-benefits. "Follow narrative rules, with recognizable actors, motives, causes, and effects" (Marshall, 2014, p. 233).
- Broaden the framing of the issue to engage a larger audience. Examples include framing climate change in terms of national security, public health, and social justice.

- Build a narrative that stresses cooperation across groups and individuals that do not necessarily agree on all aspects of the problem or solution, but who share a common identity or group membership, whether this is national, local, religious, or organizational. Members of these communities must be provided with specific opportunities for action, evidence that others are taking action, and social cues to praiseworthy behavior.
- Beware overuse of negative imagery, as this will lead to "emotional numbing" and still greater disattention.
- Tell personal stories about one's own journey to conviction, stressing the difficult emotions experienced along the way.
- To "fully activate our emotional brain," communicators should "invoke the nonnegotiable shared values," drawing on religious convictions where appropriate, that will encourage people to make short-term sacrifices for the longer-term greater good (Marshall, 2014, p. 236).

How applicable are these recommendations to the issue of industrialized livestock agriculture? Or, to put the question slightly differently, how analogous is the problem of industrialized livestock agriculture to the broader problem of climate change, of which it forms a part?

The answer, we argue, depends upon how the "problem" of industrialized livestock agriculture is framed. If the problem is the industry's negative consequences for the environment, human health, and surrounding communities, then the recommendations of the climate change literature apply in a fairly straightforward manner. If, however, the "problem" is defined as animal suffering and exploitation, then the analogies to climate change become less apt, and communication becomes vastly more difficult, precisely because underlying "nonnegotiable values" come into direct and irreconcilable conflict.

If industrialized livestock agriculture is framed as a source of negative externalities for humans and species other than the farmed animals themselves, then the task for communicators looks very much like that explored in the climate communication literature. In both cases, ordinary people are engaged in everyday behaviors that create short-term and long-term risks for the community as a whole. Moreover, many of these behaviors are much-valued markers of lifestyle and identity: personal automobile and air travel, low-density residential development, consumption of the latest gadgets and fashion, and of course regular meat consumption. Most

people do not wish to curtail these behaviors, to feel guilty about engaging in them, or to make *others* feel guilty about engaging in them—and as long as socially organized disattention prevails within one's social circle, willingness to pay more for less damaging substitutes will remain low.

How then should a "meat communicator" proceed in this situation? He/she should proceed, as the climate communication literature suggests, by stressing immediate and near-term consequences, threats to shared values, and realistic opportunities for action. Indeed, relative to climate change writ large, industrialized livestock agriculture has several characteristics that make it even *more* amenable to such an approach.

- Excessive consumption of meat and dairy products, which has become the norm in the United States, poses health risks to the individual consumer. Some of these risks may be distant (e.g., an increased future risk of heart trouble), but the risk of unwanted weight gain is immediate.
- The negative consequences of industrialized meat consumption are already abundantly clear, quite apart from its contribution to climate change, so it is easy to identify recent and present losses such as increased antibiotic resistance and environmental and economic damage to surrounding communities.
- In the United States, industrialized meat production is not woven into national identity in the same way as personal automobile travel or participation in the latest consumption trends. On the contrary, industrialized meat production comes at the expense of much-mythologized American traditions of family-owned farms and extensive cattle ranching.
- Opportunities for realistic action abound, from the relatively simple act of reduced consumption to the patronage of "organic" and "local" producers to organized pressure upon large wholesale purchasers to impose production requirements (such as reduced antibiotic use) on large-scale producers.

If, however, industrialized meat consumption is framed in terms of animal suffering and exploitation, the barriers to communication increase dramatically. First, as the literature on the "meat paradox" demonstrates, this is the aspect of meat consumption that ordinary people find most troubling; once this frame is engaged, the social and psychological incentives to engage in disattention and denial grow accordingly. But the issue

is complicated still more by the debate over the morally required response: is it the reform of the production process, and perhaps the reduction of meat and dairy consumption, or is the complete elimination of meat from one's diet, and perhaps the elimination of dairy as well?

To understand how this shift in the debate follows this shift in frame, we must briefly review the history of social mobilization around the issue of farm animal suffering. Until the advent of the Industrial Revolution, there was no organized "animal welfare" movement; this movement emerged as a twofold response to the dramatic socioeconomic changes of the nineteenth century. Its proponents were urbanites who did not engage in regular farm labor, and their campaigns were responses to changes in livestock agriculture wrought by industrialization: first, the rail transportation of live animals; then assembly-line slaughter; and finally, after the Second World War, the rapid spread of concentrated animal feeding operations (or "factory farms") within which the animals were destined to spend all or most of their brief lives.

Until the 1970s, the various activists and organizations involved in the animal welfare movement maintained a broad consensus about the nature of the problem posed by industrialized livestock agriculture. The breeding and slaughtering of animals for human consumption was morally permissible, but the infliction of unnecessary pain and suffering was not. The problem, therefore was the adoption of technologies that increased pain and suffering relative to traditional livestock husbandry, and the solution was either a return to traditional practices or (more commonly) the introduction of reforms designed to reduce pain and suffering within industrialized operations. The notion that concern about farm animal suffering implied abstention from meat or dairy consumption was not widely entertained by either activists or the public at large.

This consensus broke down rather suddenly in the 1970s with the emergence of a new frame: "animal rights." Proponents of the animal rights frame took the position that the exploitation of animals for human purposes was inherently immoral, particularly if it involved their premature death. The goal therefore should be not the reform of industrialized meat production, but the elimination of meat production altogether; and it followed that the ethical duty of each individual was not to reduce consumption or "buy local" but to cease all meat consumption—not as a temporary boycott, but as a permanent lifestyle change.

Measured solely in terms of practical outcomes, the animal rights movement has enjoyed relatively little success with respect to animal agriculture: industry reforms and regulations reflect the traditional animal welfare framing of the issue, and most people continue to consume meat and dairy products. In terms of the perception of the moral stakes involved, however, the influence of the animal rights movement has been vast. As the literature on the "meat paradox" demonstrates, it is now almost reflexively accepted by the public at large that vegetarians adopt their diets due to ethical concerns and, conversely, that concern about animal suffering implies the adoption of a vegetarian diet.

The challenge facing the "meat communicator" therefore depends upon the communicator's primary objective. If the communicator's primary objective is to encourage the audience to consider the ethical implications of animal sentience and suffering, then the question of the morality of meat consumption will almost inevitably arise, along with its attendant difficulties. If, however, the objective is to encourage the audience to consider threats to public health, environmental quality, and the socioeconomic well-being of surrounding communities, then broadening the frame to include farm animal welfare may complicate the task, as that set of concerns has come to be widely associated with a very demanding lifestyle change exceeding that required to reduce the industry's environmental and health risks.[1]

Meat in the Classroom

So where then does this leave the instructor wishing to interrogate meat production and consumption in the classroom? We would like to report that we have discovered an effective strategy to quickly break through the "meat paradox" and facilitate active, open discussion of all of these issues. Sadly, we have not. We are, however, able to offer some very tentative conclusions, based upon our own experiences and those of two of our colleagues in other disciplines.

[1] As a practical matter, the widespread adoption of vegetarian and vegan diets would very effectively reduce the environmental and health risks posed by livestock agriculture, and many environmentalists have adopted meat-free diets for precisely this reason. Our point is that this is not a necessary condition for near-term progress in reducing the industry's negative environmental or public health impacts, whereas it is a necessary condition for eliminating the breeding and killing of animals for human consumption.

The Paradox of Frontal Assault

One of the recommendations found in the literature on climate communication is to directly address the sources of denial (Norgaard, 2009). From this recommendation, Robert Darst deduced that it might be easier to talk about the problems associated with meat production if he first exposed students to the "meat paradox" and facilitated a class discussion about the social and psychological barriers to frank discussion of these problems. He tested this hypothesis in a new course on "The Politics of Animals" launched as part of an interdisciplinary faculty project on "Teaching About Meat" at the University of Massachusetts Dartmouth in 2016–2017.

This approach, which Darst dubbed the "frontal assault," proved unsuccessful. The students' reaction to the meat paradox was… the meat paradox. The same students who had eagerly and actively debated thorny issues such as pit bull bans and cetacean captivity showed little interest in discussing the reasons why discussing meat made them uncomfortable, because the subject made them too uncomfortable. Almost to a person, the students sat in sullen silence, looking as if they were victims of a personal attack—which, as the literature on the meat paradox tells us, is exactly how most meat eaters respond to any suggestion that meat consumption is morally problematic. As soon as the class moved on to another topic, the students' former eagerness to debate and participate reasserted itself.

Waste Not, Want Not

Another participant in the UMass Dartmouth project, Lydia Silva, took a very different approach in her section of Sustainability 101, "Principles of Sustainability." For her module on meat production, Silva integrated her class into "Project Clean Plate," the dining service's annual campaign to encourage students to waste less food. The students participated in waste measurement at the plate return station by separating meat waste into separate buckets based upon the type of meat (beef, chicken, pork) and measuring the waste by weight. (Previously, the dining service had measured only aggregate waste.) The students also conducted interviews with other students about their meat consumption behaviors and beliefs.

Back in the classroom, the students calculated the resources and "carbon footprint" required to produce the meat wasted during the lunch

hour. As Silva anticipated, the students were surprised and impressed by the magnitude of the resulting figures. Silva reported that this exercise prompted the students to actively participate in class discussions not only about the consequences of food waste, but also (as she had hoped) about the broader problems associated with meat production and consumption, including the question of reducing consumption as well as waste (Silva, 2017).

Why was Silva's approach so successful? First, as the climate communication literature suggests, her activity focused on local causes and effects, and was designed so that the students were responsible for extracting conclusions from data they themselves collected. In addition, her exercise was deliberately designed to avoid triggering the meat paradox prematurely. The exercise focused not on the meat that the students actually consumed, but the meat that was problematic because it was *not* consumed. The onus of "anticipated moral reproach" therefore attached itself not to the act of meat consumption, but to the act of *wasting* food—a behavior that is already culturally coded as "improper" and as acceptable dinner conversation ("finish the food on your plate, dear"). The mental hurdles to considering the consequences of "meat waste" were therefore relatively low. Once the students had invested so much time and energy into measuring and calculating the cost of the meat wasted, they needed relatively little prompting to move on to the cost of the meat actually consumed.

Food Apartheid

Professor of Sociology and Anthropology, Rachel Kulick took a second approach that also avoided premature triggering of the meat paradox. As part of her participation in the UMass Dartmouth Teaching About Meat project, Kulick introduced a module about industrialized meat production in her upper-division course "Media and Education." Kulick framed the problem as one of social injustice or "food apartheid," that is, unequal access to healthy food across geographically, ethnically, and socioeconomically segregated communities. This is a system in which more affluent communities have easy access to a wide range of food options, while the less affluent have easy access only to fast food chains and processed food products. These unhealthy food choices are encouraged by positive, carefully targeted advertising messages that link fast food to health, family, and fun.

After introducing the concept of food apartheid, Kulick encouraged her students to work backward through the production process that delivers fast food and to consider both the magnitude and the social distribution of the social, economic, environmental, and animal welfare costs generated along the way. Kulick reported that the primary reaction of her students was not defensive self-justification, but indignation on behalf of those harmed by the "McDonaldization" of food production for the less affluent (Kulick, 2017).

How did Kulick's assignment circumvent the meat paradox? At first glance, we might expect the meat paradox to have arisen immediately, since Kulick focused her students' attention on food actually consumed, not food wasted, and she explicitly included animal suffering in the costs that the students were asked to consider. We argue that there were two key ingredients to Kulick's success. First, Kulick began by inviting her students to evaluate the social costs of a particular *segment* of the meat industry—fast food—rather than by asking them to consider the costs of meat consumption in general. This allowed the students more "guilt-free space" to explore the issues involved. Moreover, Kulick presented reliance on fast food outlets as a form of socioeconomic segregation, not as a free individual choice, thus allowing still more space.

Second, Kulick followed the climate communication literature's dictum to "follow narrative rules, with recognizable actors, motives, causes, and effects" (Marshall, 2014, p. 233). The villains of the piece are the fast food industry and its allies in government and the media; the motives are profit and social control; the victims are those who are already socially, economically, and ethnically disadvantaged; and the reproduction of inequality is both cause and effect. In this narrative, the students identify themselves with (and as) the victims, not as morally reproachable "perpetrators." Like the restricted focus on "fast food," this narrative structure gives the students additional space within which to consider the larger issues involved without immediately tackling the thorny question of their own participation in reproducing the system.

An Unbridgeable Divide?

Darst, Silva, and Kulick each sought—in different ways, and with differing degrees of success—to neutralize the meat paradox, to move their students toward a more "guilt-free" discussion that did not turn on the morality of meat consumption per se. Such an approach is not feasible, however, if the instructor's goal is to explore precisely this question. Yet

this is the situation in which the meat paradox is most likely to frustrate open discussion, especially if anticipated moral reproach is augmented by *actual* moral reproach from other participants.

This is the situation that Jane Dawson sought to address in her senior seminar on Global Environmental Justice. The students taking this seminar often hold passionate views on both environmental protection and human-animal relations, and in semesters past, discussions of meat production and consumption typically ended with the students either tiptoeing around one another's feelings or putting one another on the defensive.

In response, Dawson turned to a philosophical framework to help facilitate the conversation, asking her students to read chapters from David Schlosberg's *Defining Environmental Justice*. One of Schlosberg's central goals is to bring together activists who focus on justice to humans (environmental justice) with those who focus on justice to non-human animals as well (ecological justice). Schlosberg posits a pluralist view of environmental and ecological justice, identifying four components that can be applied to both humans and non-human animals: recognition of the aggrieved group, distribution of benefits and burdens, procedure for inclusion, and ensuring the capabilities for all living creatures to flourish (Schlosberg, 2007).

While all but the procedural element are easily applicable to injustices against both humans and non-human animals, the fact that the students were employing a common framework to understand both types of injustices in fact did very little to bridge the divide in the classroom. While the students were able to find common ground on the issue of recognizing animals as sentient beings requiring non-abusive treatment by humans, the main sticking point was in fact the central feature of the meat and ecological justice debate: the taking of animal lives.

The students fell into two groups: those advocating the end of industrialized farming methods that hinder animal welfare and flourishing, but continuation of the humane raising of livestock and non-human animals for meat, and those rejecting the killing of non-human animals for human meat consumption as outside the boundary of ethical behavior and a denial of genuine animal flourishing. The dynamic in the classroom grew even less productive and more polarized than usual, with proponents of animal rights and humane farming becoming very emotional, while the majority of the class worked to stay out of the fray and not tread on toes. In other words, Dawson's bridge-building exercise foundered on the apparently unbridgeable divide between the "nonnegotiable values" of animal rights and animal welfare described in the preceding section: a divide no easier to bridge in the classroom than in the "real world."

Conclusion

For the most part, critical animal pedagogy has thus far been dominated by scholars in the animal rights tradition. Scholars in this tradition start from the position that meat consumption is inherently unethical and argue that the ultimate goal of critical animal pedagogy is to promote the abolition of animal exploitation and to encourage students to adopt vegan or vegetarian diets (e.g., Dinker & Pedersen, 2016; Rice, 2013; Rowe, 2012; Wright-Maley, 2011). As recognition rises that the climate change crisis cannot be addressed without reducing emissions from livestock agriculture, however, educators trained in environmental studies and environmental science will increasingly find themselves grappling with the thorny issue of "teaching about meat." What are the implications for the broader field of animal pedagogy? We will conclude by suggesting three.

First, if an educator's pedagogical motive for "teaching about meat" does not require questioning the intrinsic morality of meat consumption—as, for example, might be the case in a course on climate change or human health—then the educator may wish to avoid raising that question, especially if time is short. From the perspective of the animal rights educator, there is no downside to cataloging the environmental ills wrought by industrialized livestock agriculture. From the perspective of the environmental educator, however, there *is* a downside to raising animal rights: this engages the all-or-nothing denial mechanisms of the meat paradox, and makes it more difficult for students to consider solutions such as switching from beef to chicken, portion reduction, waste avoidance, and better regulation of the meat industry.

Second, sequencing matters. If the educator's pedagogical goals *do* include consideration of the fundamental morality of meat consumption, then it may be advisable to approach that question indirectly, by initially framing the problem in a way that does not immediately subject the choice to eat meat to ethical scrutiny. The "food waste" and "food apartheid" strategies described above are examples of approaches that accomplished this goal. If students are given a non-threatening space within which to consider the negative consequences of industrialized meat production, then more fundamental questions about their own dietary choices will logically follow. Discussion of these questions will still be difficult, but (hopefully) more productive as well.

Finally, educators and students in environmental studies and science will not necessarily embrace the animal rights frame. The environmental

tradition focuses on threats to human health and the well-being of species and ecosystems rather than harm to individual animals, and environmentalists are much more likely than animal rightists to draw a sharp distinction between "wild" and "domesticated" species: wild species are the subject of protection and concern, whereas domesticated species are part of the anthropogenic threat to wild species. Thus, from the environmental perspective, meat is problematic because of the *external* costs that meat production imposes upon surrounding human communities, wild species, and natural ecosystems. With respect to domesticated animals, environmentalists *may* embrace the animal rights perspective—they are not mutually exclusive—but they more commonly share the animal welfare perspective associated with the modern sustainable animal agriculture movement (Darst & Dawson, forthcoming). The environmental tradition therefore offers no definitive answer to the morality of meat consumption per se. Indeed, we (the authors of this chapter) do not agree on this fundamental question.

Given this divergence of views within the environmental tradition, the influx of environmental educators into animal pedagogy is likely to lead to *less* agreement about the intrinsic morality of meat consumption and, accordingly, less agreement that the ultimate goal of critical animal pedagogy is to promote animal rights. This may cause friction and dismay: in the UMass Dartmouth project, for example, participants from non-environmental disciplines were initially astonished to learn that most of the participants from environmental studies and science were not vegetarians. The resulting vigorous debate may have changed no minds, but it certainly led to greater understanding of, and respect for, the other participants' perspectives. It is our hope that this will be true in the broader field as well.

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CHAPTER 13

Significant Life Experiences and Animal-Themed Education

Susan Caplow and Jennifer Thomsen

Introduction and Background

Significant life experiences (SLE) and animal-themed education are a nexus for multiple disciplines and can inform how we engage with animals in educational settings that can influence lifelong behaviors and career paths. Integrating psychological, behavioral, ecological, and educational disciplines, we aim to gain a better understanding as to how and why animal-themed educators have chosen their career paths.

SLE literature posits that people have significant experiences that lead them toward certain outcomes and aid in the development of a cohesive life narrative (Chawla, 1998b; Tanner, 1980). Previous studies using the SLE framework consistently emphasize time spent outdoors

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in nature, adult mentors, and educational content as important predictors of environmentalism (Bixler, James, & Vadala, 2011). While these studies consider the role of animal interactions in the development of environmental professionals, no previous work has considered whether educators working with animals experience fundamentally different SLEs that shape their commitment to conservation education.

Our research explores the idea that animals may represent a unique pathway to care for the environment within the SLE framework. In this research study, we ask: (1) How do SLEs influence animal-themed educators in their choice to work/volunteer in this field? (2) Can the SLE framework help us uncover any new insights within environmental educators and interpreters that are not seen in more generalized SLE research? (3) Can animal education be considered a unique pathway to environmental care? Our work contributes to a greater understanding of environmental educators' decisions and how these SLEs influence their roles and identities as educators. The findings can help us better understand how animal education contributes to the development of an environmentally minded population.

Environmental Education and Interpretation

As part of SLE research, participants often recall educational experiences that have influenced their desire to pursue environmental education careers. Remembering first experiences at zoos, seeing an elephant or other majestic creature in close proximity, can solidify passion for working with wildlife, which can lead to further opportunities in school, such as working abroad with wildlife in college. Environmental education can represent a perfect opportunity to work with animals, generate awareness for wildlife conservation, and inspire emotional connections between animals and people.

Environmental education and interpretation programs have grown over the past few decades (Stern, Powell, & Hill, 2014). Environmental education is "a learning process that increases people's knowledge and awareness about the environment and its associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action" (UNESCO-UNEP, 1978). Interpretation overlaps substantively with environmental education, and is defined by the

National Association for Interpretation (NAI) as "a mission-based communication process that forges emotional and intellectual connections between the interests of the audience and the meaning inherent in the resource" (NAI, 2017).

Interpretation and environmental education programs take different forms in a variety of settings. Many programs center on animal themes that involve viewing wildlife in a natural setting (Ham & Weiler, 2002; Hughes, 2013; Skibins, Powell, & Hallo, 2016; Skibins & Sharp, 2017) or viewing animals in a non-natural setting such as an aquarium, zoo, or nature center (Skibins & Powell, 2013). Animals used in programs can help foster development of environmental values, beliefs, and norms (Myers & Saunders, 2003). Animal-themed education programs help develop affective interest, which leads to greater ability to retain program material and relate the information to personal experiences (Lazarus, 1991; Myers, Saunders, & Bexell, 2009; Webb, 2000). Emotional connections with animals can also expand one's sense of moral obligation to include caring for animals (Archer & Wearing, 2003). The extension of one's sense of moral responsibility to include animals can serve as a gateway to expanding personal care to other aspects of the environment (Vining, 2003). Despite recent gains in understandings of visitors, education research in zoos and aquariums is still underdeveloped (Ogden & Heimlich, 2009), and specialty organizations that house animals are almost entirely excluded from this type of research. As organizations housing animals are under increasing pressure to demonstrate the value of keeping animals in captivity, more information is needed about how animal-themed organizations can offer experiences for both visitors and educators that have positive social and environmental impacts.

Significant Life Experiences

SLE theory acknowledges the historical and narrative perspective in the learning process (Chawla, 1998a; Tanner, 1980). The SLE framework has been used to identify the development of environmental values and behaviors (Cachelin, Paisley, & Blanchard, 2008; Chawla, 1999; Howell & Allen, 2016; Hsu, 2009; Torkar, 2014). SLE theory posits that people experience significant events throughout their lives that facilitate certain outcomes and aid in the development of a cohesive life narrative (Chawla, 1998b).

Existing SLE literature finds that experiences with wild places, scenes of environmental destruction, educational experiences, and adult mentors help develop environmentalist identities (Chawla, 1999). The evidence also suggests that repeated interactions with nature, animals, and educational content augment previous SLEs (Bixler, James, & Vadala, 2011). SLE facilitates research sensitive to pre-existing identities and values (Ballantyne & Packer, 2005). While methods tend to be qualitative and retrospective, some scholars have conducted longitudinal and quantitative studies using SLE (Stevenson et al., 2014; Wells & Lekies, 2006).

This theory has been used primarily to study environmental professionals and activists (Tanner, 1998), and environmental education researchers have used SLE framework extensively (Bixler et al., 2011; Palmer & Suggate, 1996; Williams & Chawla, 2016). While environmentalist populations share unifying SLEs, critical differences within environmentalist populations have been uncovered using an SLE framework. Howell and Allen (2016) found that climate change educators diverged in their SLE narratives from more traditional environmental educators, citing a concern to address social justice issues as a motivating factor, and that childhood play in natural areas was a less influencing factor for climate change educators' career paths, suggesting that connection to nature may not be as critical to all environmental educator career paths.

While SLE has been used extensively in studying environmentally focused populations, a vigorous debate has surrounded defining SLE research subjects and the link between SLE and environmental activism (summarized and critiqued in Chawla, 2001). We also do not know if other factors are more important determinants than SLEs in producing environmental activism. While SLE experiences have been shown to have predictive abilities for environmental activists (Hsu, 2009), research in this area is still underdeveloped.

Significant Life Experiences and Animal-Themed Education

Research in humane education, which promotes empathy and humane behavior, has employed the SLE framework to explore how individuals develop a sensitivity toward animals (Lewis, 2007), but we seek to explore the pathway of environmental care via animals. Limited research on zoo volunteers or employees has shown that linkages to environmental care may be prominent in this population (Clayton & Myers, 2009; Fraser, Clayton, Sickler, & Taylor, 2009; Groff, Lockhart,

Ogden, & Dierking, 2005). However, no studies have focused on previous experiences of animal-themed educators leading them to pursue those roles. Understanding how animal-themed educators construct their SLEs can help us understand what types of experiences are more likely to produce people who are committed to this type of work. Additionally, we add perspectives from educators at specialty organizations, as these places are largely excluded from animal-themed institutional research (zoos, aquariums, and nature centers are more commonly the focal institutions).

Thus, we ask: (1) How do SLEs influence animal-themed educators in their choice to work or volunteer in this field? (2) Can the SLE framework help us uncover any new insights within environmental educators and interpreters that are not seen in more generalized SLE research? (3) Can animal education be considered a unique pathway to environmental care?

Methods

For this study, we use qualitative interview data as our primary source (Saldaña, 2009). Qualitative data allowed us both to capture traditional SLE themes and explore additional concepts related to animal-themed environmental education not analyzed in previous work. We interviewed educators at three different sites to capture differences across contexts. The three sites differ in several ways (Table 13.1), but are similar in key characteristics, including their focus on conservation education, their offering of guided tours, and their location in North Carolina.

Carolina Tiger Rescue (CTR) is a wildcat rescue organization. Most of their resources go toward saving and housing wildcats, but they also run volunteer-led education programs teaching the public about the plight of wildcats in captivity and in the wild. Duke Lemur Center (DLC) is a research, conservation, and education-focused organization affiliated with Duke University. They engage in conservation efforts in Madagascar, support non-invasive research on-site, and offer education programs to inform the public about lemurs and the organization's work. DLC uses a combination of staff, interns, and volunteers to run their education program. The North Carolina Aquarium (NCA) is a state-run facility with a focus on education in support of the state's aquatic resources. They allow the public to visit without a tour, but they also offer behind-the-scenes tours run by staff or interns for an additional fee.

Table 13.1 Organization characteristics

	Carolina Tiger Rescue	*Duke Lemur Center*	*NC Aquarium*
Mission statement	"Saving and protecting wild cats in captivity and in the wild"	"Promote research and understanding of prosimians and their natural habitat as a means of advancing the frontiers of knowledge, to contribute to the educational development of future leaders in international scholarship and conservation and to enhance the human condition by stimulating intellectual growth and sustaining global biodiversity"	"Inspiring appreciation and conservation of North Carolina's Aquatic Environments"
Management	Independent non-profit	University affiliate	State
Type of animals	Carnivores (domestic and exotic)	Lemurs (exotic)	Marine (domestic)
Location	Pittsboro, NC	Durham, NC	Pine Knoll Shores, NC
Educational offerings	Guided programs only	Guided programs only	Guided programs and unstructured visits
Wild status of flagship animal (IUCN)	Endangered, 3 of 9 tiger subspecies extinct	World's most endangered primates	4 of 7 of sea turtle species endangered or threatened

Adapted from Caplow (2014)

Data Collection and Analysis

One author (SC) conducted 27 interviews in 2012 and 2013, including 9 with CTR educators, 8 with DLC educators, and 10 with NCA educators (Table 13.2). She interviewed four educators twice (one at CTR, one at DLC, and two at NCA). She interviewed each educator for 1–2 hours. Interview topics included the educator's background, environmental values, beliefs, and norms, and description and assessment of their education programs (interview guides available upon request). Previous literature has explored many iterations of the concepts of environmental sensitivity, environmental careers, environmentalism, and environmental action (Chawla, 1998b; Tanner, 1998; Wells & Lekies, 2006). These topics emerged in multiple ways throughout each interview; thus, we broadly include formative experiences as they relate to the individual's outlook and career path.

Table 13.2 Characteristics of educator sample

	CTR	*DLC*	*NCA*
% Volunteer	7	3	0
% Seasonal	0	2	3
% Full-time	1	2	5
% Female	75%	57%	63%
% Over 30	88%	43%	25%

We transcribed the interviews and coded passages related to SLEs. Both authors coded the same 15 excerpts for both traditional SLE concepts (e.g. time spent outdoors, with mentors, etc.) as well as emergent themes (Corbin & Strauss, 2008) and then discussed ideas and converged upon shared codes to use for the entire sample. For the SLE codes, we tabbed frequencies for each code for comparison to previous studies. We then undertook a second round of coding in which we further explored our emergent themes. We coded all data using Atlas.ti software.

Results

Significant Life Experiences

Respondents shared stories evocative of themes uncovered in previous SLE research. Participants explored wooded areas, caught bugs, and played in the mud, experiences we traditionally view as "pre-environmentalist." Unfortunately, constructs used in previous SLE studies are not sufficiently consistent to compare statistically across studies (Chawla, 1998a), but we can make general observations about similarities and differences between study populations.

First, we found several trends confirming previous research. Mentors featured prominently in participant narratives; 70 percent of the educators in our study cited at least one type of mentor in their formative experiences. We found similar support for outdoor experiences as SLEs. We coded for a variety of types of outdoor experiences (Table 13.3) and found that only 35 percent of our respondents used our general code of "time spent in natural areas." However, 70 percent cited at least one type of outdoor experience as influential. Frequent contact with one place and wild animal encounters were each mentioned by 35 percent of our respondents.

Table 13.3 Significant life experiences for animal-themed educators

SLE construct	*CTR*	*DLC*	*NCA*	*Total*
Influential people				
Parents	38%	29%	63%	43%
Other family	50%	29%	25%	35%
Teachers	0%	0%	0%	0%
Friends	25%	14%	13%	17%
Mentors	0%	0%	13%	4%
Other people	25%	14%	0%	13%
Any influential person	**75%**	**57%**	**75%**	**70%**
Outdoor experiences				
Solitude outdoors	0%	14%	13%	9%
Time spent in natural areas	25%	14%	63%	35%
Watching habitat alteration	0%	0%	13%	4%
Frequent contact with one space	0%	71%	38%	35%
Travel	0%	14%	13%	9%
Family vacations	13%	0%	50%	22%
Childhood play	13%	14%	0%	9%
Youth groups/camp	0%	0%	38%	13%
Hunting/fishing	0%	0%	13%	4%
Gardening	0%	0%	0%	0%
Farm	0%	0%	0%	0%
Wild animal encounters	25%	29%	50%	35%
Any outdoor experience	**50%**	**57%**	**100%**	**70%**
Media/education				
Books	0%	0%	13%	4%
TV/movies	25%	0%	25%	17%
Study of natural systems/school	25%	100%	63%	61%
Science	25%	14%	38%	26%
Other life experiences				
Pets	13%	29%	13%	17%
Other domestic animals	25%	14%	13%	17%
Becoming a parent	38%	0%	0%	13%
Job opportunity	25%	14%	50%	30%
Vocation	38%	71%	38%	48%
Volunteering	50%	57%	38%	48%
Zoo/aquarium	25%	29%	50%	35%
Abstract themes				
Environmentalist	50%	43%	13%	35%
Professional responsibility	25%	0%	13%	13%
Religion/spirituality	13%	0%	13%	9%
Inherent interest	63%	71%	50%	61%
Community concern/future concern	25%	29%	13%	22%
Sense of social justice	0%	0%	0%	0%
Identity (I'm a _____ person)	25%	14%	13%	17%

Our results also differed from previous SLE studies (many summarized in Chawla, 1998b). Educational activities (both formal and informal) were our most commonly mentioned experience (61 percent), which rates it higher among our population than in most other studies (Chawla, 1998b). Only one respondent mentioned habitat alteration, which featured prominently in previous studies (Chawla, 1999; Peterson, 1982; Tanner, 1980). Thirty-five percent of the participants mentioned zoo or aquarium experiences, which was not included in other SLE studies as a category. Respondents also mentioned inherent interest in 61 percent of our interviews, which is higher than previous studies (James, 1993), although interest is not an experience. Finally, while pets and domestic animals were not mentioned frequently (17 percent for each), animals still featured more prominently than in previous SLE studies (Chawla, 1998b).

As for site-specific differences, NCA educators emphasized outdoor experiences of various types more than educators at other facilities (100 percent vs. 50 percent and 57 percent at CTR/DLC). DLC educators cited school experiences far more frequently than CTR educators (100 percent vs. 25 percent), with NCA falling in the middle (63 percent).

Site-Specific Experiences

Experiences specific to the work at the respective site came up in 70 percent of our interviews, yet this topic did not feature prominently in any previous literature. We identified these experiences as a commitment to the facility itself, the type of animal the facility houses, or to the specific type of work the organization does.

For some volunteers who have served the organization for decades, their commitment to the cause is intertwined with their continued experience of serving the organization. In other words, they do not identify a previous life experience that led to their work; rather, the volunteering itself led to their commitment. For example, this CTR volunteer has consistently worked at CTR for almost 20 years, and she describes the singular "aha" moment that hooked her into this ongoing commitment:

> I started volunteering there in 1994…I went over there and figured well, they might let me push paper around or something like that, and at that time we were still breeding animals so when I walked in the door the first things that happened was a baby serval came and rubbed up against my leg and I was hooked. At that moment I said, 'I am here'. (CTR 555)

She initially expressed a casual interest in the organization, but over the years, her identity has become tightly interwoven with the work, largely fueled by the emotional connection to both the animals and the organization. As another CTR educator expressed,

> I really like Carolina Tiger because for one, I know all of the animals here. They're my friends. I mean, I like to come out here to see them as much as I do the people that work here, you know? And I can't imagine leaving for another position. Even though I know there are other good facilities out there, I know there are. But I can't imagine leaving MY animals. I feel like they're MINE. (CTR 35)

This volunteer suggests her commitment to place and the specific animals is stronger than her commitment to this type of work and the tiger species. Her personal, emotional connection to the animals speaks to both an attachment to animals and evokes a sense of place narrative (Lloro-Bidart, 2017; Warkentin, 2011).

One volunteer at DLC exemplifies the second type of site-specific theme that focuses on the species itself. He explains his story of his emotional connection formed with lemurs at a previous facility and his commitment to the type of animal:

> By the time I got into the program I decided I only wanted to be assigned to the lemurs… I can say pretty confidently that I was adopted into the troop, that they treated me like a lemur…needless to say I formed a very close bond. And I made a promise to myself and to them that I would dedicate my life to lemurs. It's not just lemurs also, I mean having been to Madagascar cemented it, just because the people there are so phenomenal and for me it's not just lemurs but it's also the people of Madagascar that I care about, and everything on the island. (DLC 51)

This volunteer expressed a stronger bond to lemurs than any other person in our sample, but interestingly, even with this level of specificity, he also extended this love out to Madagascar's people, supporting the idea that moral care can grow from specific commitments to more general conservation interests.

NCA educators best articulated commitment to a specific type of organization. All NCA educators described a lifelong love for aquatic environments; much of their natural area experience was in marine contexts. Multiple NCA educators also described a long-term relationship with NCA in particular:

> I always knew I wanted to be a marine biologist, but to me that always meant working in aquariums with animals that lived in the water, and I always loved animals, so I went to school for biology – well, I should preface that I grew up in Kansas City, so everybody thought I was just crazy. But we lived in North Carolina for a little bit when I was younger, and we would come back to go to the beach on vacation, and I just loved it. And we actually took vacation here, and I'd be like, 'I'm going to work there when I grow up!' (NCA 86)

This educator's career path has been relatively clear to her from a young age. Her perspective exemplifies both a lifelong commitment to the organization *and* the type of organization; being able to work at the aquarium she dreamed of as a child is a particularly meaningful experience for her.

Animals as Pathway to Care

All of our interviewees articulated environmental values, beliefs, and behaviors in some form, suggesting at the very least a connection, if not a causation, between animal care and general environmental perspectives. Some interviewees were also able to articulate their process of expanding their sense of moral obligation, either from one animal to another, or from animals to the wider environment, suggesting some level of causality for their expanding moral circle.

The first type of expansion we observed were those who directly likened the suffering of domestic animals to that of wild animals, such as this DLC educator who likens the sadness of shelter animals to those without habitat:

> I mostly had pets, but… this isn't environmental, but when you go to an animal shelter and you see the animals there, and you feel bad for them – and so it kind of goes hand in hand when you see wild animals, and you learn about how they're losing their habitat – it's pretty much the same thing, except no one is making a shelter for them, and they can't get adopted by people… so I think those two things are kind of similar. (DLC 48)

Similarly, this CTR educator described his relationship to pets and domestic animals as the original significant experience, but also identified how those activities fostered a love for wild animals:

> We had a hobby farm, a couple of horses, we always had cats and dogs and things like that… and we'd always help with the humane society … we'd donate money to the shelter every year and they'd give us a little ornament that had this quote on the bottom that said, "be the voice for the ones who don't have one" or something like that and it was so true, whatever you want to use, like a frog, so many amphibians are endangered because of that fungus or whatever and a little frog can't stand up and go, 'excuse me guys…' you know? (CTR 557)

In both cases, the significant *experience* in question was with domestic animals, but the interviewee articulates how caring for animals in those contexts helped them rationalize the value of caring for wild animals as well.

A second pathway to care we observed is one that connects animal experiences to caring for people. This educator described how he developed a sense of intergenerational equity from a powerful interaction with wild nature with his father:

> I actually remember the very first time I saw a green turtle out in the wild… it was the first dive I'd done with my dad… all my life I remember him and his friends going out, they would do night dives, they'd come back with stone crabs and flounder at like 1:00 a.m., and mom would cook it. And then I finally talked him into taking me, and we saw a green turtle. What are the odds of that?… And I want to be able to do that with my kid. (NCA 92)

The specialness of this wild encounter also evokes a commitment to place, and a commitment to the specific environment. We also saw a moral expansion toward people in the quote in the previous section in which the interviewee's love for lemurs translated into a love for the people of Madagascar.

Finally, there were also educators in the sample who found that working with animals solidified their desire to work in *other* areas of environmental concern; working with animals either did not change their path or encouraged them to pursue other environmental interests. In the latter camp, one DLC educator found that after learning more about lemurs through her job, she was less interested in pursuing lemur conservation as a long-term career:

> I work at the lemur center but I don't even know if I want to really even work with animals so much, but energy could be exciting… Sustainability, efficiency. Like, I think it's all really important. I don't know, it's a little more exciting for me to think about energy. This is kind of bad, but I already feel that the lemurs are in a tough spot…it's really sad just saying that. (DLC 562)

For this educator, working with lemurs did not solidify her desire to help them. Rather, her experience imbued her with enough pessimism toward species conservation that she felt pulled into areas in which she felt more optimism, perhaps still motivated in part by love for the animals, accompanied by the belief that she can make a bigger impact in other environmental careers.

Significant Life Experience Pathway Still in Progress

Many of our educators felt as though their path was incomplete; to address this "in progress" narrative, we looked at both participant views on change and educators who were interviewed in 2012 and 2013. Related to the above theme, some of them wanted to continue with similar work, whereas others felt drawn to a different path, typically related to environmental work. Like the above educators who indicated they were more interested in environmental science and energy sustainability, this educator would rather pursue a career in research:

> I don't know [what I want to do]. Any sort of research. I just like researching things. Like, my dream job would be researching migration patterns of great whites. Or just tagging sharks in general. I love sharks. They're adorable. I want one, I just wanna hold one. (NCA 515)

This quote highlights how education positions may fulfill some element of the individual's goals, but is seen more as a stepping stone than a final destination.

In contrast to the younger educators, some older volunteers describe how their path shifted; they wanted to work with animals when they were younger, and volunteer work helps them live out dreams that were never fully realized:

> I wanted to be a veterinarian when I was in college. That was what I studied to be and I specifically wanted to be an exotic animal vet. However, the money ran out before the schooling was over, and I decided that I just wasn't going to pursue a bunch of student loans and everything. And my husband knew that I still had this deep seeded love for the animals, so in October of 2006 he had found out about Carolina Tiger- and he took me out there on a tour… It just, was like a hand in glove, it just fit. (CTR 565)

This quote highlights the need to capture people who may not identify as environmental educators or professionals, because their stories help us understand why individuals pursue volunteer work in these settings.

We collected data on changes occurring for four educators between 2012 and 2013. Two educators noted that their programmatic interests changed, but in opposing directions. The DLC educator decided to pursue environmental science as a career, and so in the second year, she was more focused on bigger picture environmental issues:

> So my interests have kind of shifted a little more, I do like more of the science'y stuff, but I would rather tell [the audience] about conservation… this year I think that's more important than I did last year. (DLC 562)

On the other hand, one NCA educator who plans to pursue a career as a divemaster feels less inclined to focus on conservation a year later:

> I've just found in my behind-the-scenes tour, me personally, I would rather have more stuff about the animals and less stuff about the conservation. Because, the conservation stuff's not tangible to them at the time. These animals, I can whip 'em out, they can touch some of 'em, we can get really close and interact with some of 'em. And I think for a behind-the-scenes tour, that's more what we're going for. (NCA 156)

These differences illustrate that working in these contexts can cause different changes in the educator depending on what their personal goals are, and where their passions lie.

Discussion

Significant Life Experiences in Animal-Themed Educators

We found evidence that animal-themed educators have had many of the SLEs traditionally associated with environmentalists in other literature, but with some key differences. Unsurprisingly, these educators place more emphasis on animal experiences (e.g. wild, captive, and domestic), but these experiences are still less emphasized in our sample than nature play, educational experiences, and mentors. Thus, we see potential for both animal-related and nature-related experiences to encourage individuals to pursue education positions in animal facilities, and that educators in these contexts are motivated by diverse interests and values.

Of the outdoor experiences the group mentioned, encounters with natural areas, with wild animals, and with a particular place were the most frequently mentioned types of experiences. This suggests that the linking of wild spaces to place connections and with animals could perhaps be a key factor in developing both environmental care and commitment to animal conservation. In particular, emotional connections to spaces though educational opportunities may prove to be particularly helpful in expanding both care and commitment (Goralnik & Nelson, 2015). Our respondents articulated this connection between outdoor experiences and care, and indicate that these SLEs can further lead to lifelong commitments to volunteering or a career linked to the species or environment.

While our understanding of the emotional impacts of environmental education remains underexplored (Russell & Oakley, 2016), our findings help support the growth of environmental education and interpretation, as programs can promote deeper commitment through opportunities for volunteering, internships, and career paths. As for site-specific differences, NCA educators emphasized outdoor experiences of various types more than educators at other facilities, which is interesting given the concern that outdoor-themed childhoods are less available to younger generations (Louv, 2005). NCA educators were the youngest group in the study, with 25 percent over the age of 30 versus CTR with 88 percent over 30. This indicates that NCA educators may have fundamentally different experiences leading them to pursue aquarium work versus educators in other settings. In this case, NCA differs from the other two sites by offering opportunities to engage with native species in a local environment, which may explain why more NCA educators emphasized outdoor experiences. Bunderson and Thompson (2009) found that many zookeepers felt a sense of moral calling to their work, and this sense resulted in holding their institution to high standards. Understanding more about educator motivations at institutions with different species has important implications for these institutions' ability to cultivate and recruit individuals to commit to their missions.

DLC educators cited school experiences far more frequently than CTR educators, with NCA in the middle. As DLC is the most academically oriented of the institutions, this again supports the idea that site-related differences select for different educator experiences. Site-specific research helps us better understand how organization characteristics interact with educator experiences to produce different outcomes for both education and professional development.

New Insights Using Significant Life Experiences

A place-based narrative might be helpful to explain environmental educators' motivations at specific facilities (Lewicka, 2011). A sense of place is typically defined as attachment to the meaning associated with a place (Kudryavtsev, Stedman, & Krasny, 2012), which could be applied to our educators who demonstrate a commitment to a particular landscape, organization, or animal. Previous research demonstrates the connection between place and pro-environmental behaviors (Devine-Wright & Howes, 2010; Halpenny, 2010; Takahashi & Selfa, 2015; Tonge, Ryan, Moore, & Beckley, 2015). We find that these bonds to "place" in this broad sense strengthen narratives and add meaning to educators' lives, so organizations that can effectively include community members of all generations might be able to better develop those relationships and foster that commitment. While place connections have been broadly connected to environmental care, more in-depth study is needed regarding the changes associated with long-term commitment and association with a particular organization. In this sense, as SLE research typically transcends individual organizations or causes, commitment to place is underexplored. We also argue that "in progress" life narratives are an underreported phenomenon in the SLE literature. Understanding SLE narratives at different stages in a career is a needed future direction for this type of research.

Our findings suggest a nascent typology that represents four types of animal-themed educators based on SLEs and our new themes. First, the Animal Identity educator is motivated by their strong identity with a specific animal type (e.g. a person who self-identifies as a "cat person."). Second, the Broad Environmentalist educator is not connected to a specific species or environment, but rather cares for a diverse set of environmental issues and species. Third, the Site Loyalist educators have an emotional connection with a site and/or the animals specifically housed at that site. Last, Opportunists educators do not have specific ties to a species, site, or environmental issues; rather, they take advantage of any experience that could lead to interesting opportunities down the road. While individuals may exhibit multiple types of motivations, this typology can help us better understand how specific experiences influence motivation and career choices. Future studies could collect longitudinal data to better understand how perspectives evolve in response to ongoing SLEs as they approach career maturity.

Unique Pathway to Care

We found that educators could readily articulate the pathway of animal care extending to other animals, other people, and the environment, emphasizing the importance of animals as a pathway to expanding care (Archer & Wearing, 2003; Vining, 2003). Educators also articulated that these changes occurred both as a result of working in those settings and as a result of their other SLEs that led them to seek these education positions. We see diversity in these pathways, as some individuals tighten their commitment to a specific cause, whereas others experience animal-themed education as a gateway to other types of environmental commitment. In particular, the educator who found working with lemurs led to discouragement/redirection emphasizes the need to manage and confront negative emotions in environmental work to channel them toward action and optimism (Kelsey, 2016). More data are needed to better understand how this process is framed in other institutional contexts, but more of a consideration for how these places can foster this expanding commitment can help ensure that animal-themed facilities are justifying their work, offering diverse professional outcomes for educators with different interests, and contributing to larger ecological conservation goals (Shani & Pizam, 2010). Data from outdoor education initiatives suggest that particular features of environmental education programs, such as small groups, narrative/storytelling, and student-driven choices can help develop agency (Goralnik & Nelson, 2015). Education programs that consider these long-term changes and how their curriculum can fit into ongoing life narratives will help ensure that students continually make meaning, build their environmental competencies, and create a life narrative that helps them make choices to allow them to reach their personal and professional goals.

Conclusion

Our research contributes to understanding how SLEs influence decisions to volunteer or work in animal-themed education across three different types of organizations. We highlight similarities and differences from previous SLE studies in more generalized environmental education research. This work has implications for pedagogical design of environmental education programs. Our findings emphasize the impact site-specific experiences can have on future volunteers and employees to the site, as well as the importance of both nature and animal experiences in the development

of environmental care. We thus suggest that cultivating commitment to the specific animals or facility conducting the environmental education programs may help lead to more long-term place attachment, which may support volunteer and career opportunities in the same facilities.

Often individuals' career paths into environmental education and interpretation are circuitous and diverse. Our research applies SLE theory to better understand these paths and offers suggestions for how animal-themed educational institutions can design programs for educators and visitors that can encourage ongoing engagement through fostering connections to the species, landscapes, and the institution. We hope this study serves as a foundation for future research expanding our understanding of SLE and the connections to animal-themed educators.

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Afterword

Carol J. Adams

In 1942, the French Christian thinker Simone Weil wrote an essay, "Reflections on the Right Use of School Studies with a View to the Love of God." After her death, it was published in a collection of her writings *Waiting on God*. It may seem that neither title is a very promising one for the issues examined by the chapters in this book. Yet, as I read the chapters contained here, I kept returning to the ideas she introduces there.

Weil's essay was for her friend Father Perrin, knowing he would be in contact with students in a new mission (Pétrement, 1976). Weil was concerned with the concept of *attention*. At the beginning of the essay she says, "Although people seem to be unaware of it to-day, the development of the faculty of attention forms the real object and almost the sole interest of studies." While the ultimate goal for Weil is the development of attention in Christian practice, nonetheless her insight into the functioning of the development of attention in learning environments is quite apposite. Weil argued that aptitude or natural taste for a subject is not necessary for learning, more important is the wrestling with a problem or studying a theorem. In that wrestling, attention is taught.

The courses described within these pages—environmental courses that explore a variety of issues through a variety of methods—evoke for me the ethos of what Weil argued for: the "development of the faculty of attention." And the creative pedagogies reflected in the chapters help us think about how we bring attention to other animals.

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Later in the essay Weil writes, "The love of our neighbor in all its fullness simply means being able to say to [them]: 'What are you going through?'" Attention, Josephine Donovan and I have argued, means not only asking, "What are you going through?" but being willing to hear the answer. Donovan believes that "were vivisectionists to ask such a question, we would not have vivisection" (Donovan, 2006, p. 75). She elaborates on these ideas in *The Aesthetics of Care: On the Literary Treatment of Animals* (Donovan, 2016). In Donovan's discussion, Weil says the question, "What are you going through?"

> is a recognition that the sufferer exists, not only as a unit in a collection, or a specimen from the social category labeled 'unfortunate,' but as [an individual], exactly like us, who was one day stamped with a special mark by affliction. For this reason it is enough, but it is indispensable, to know how to look at [them] in a certain way.
>
> This way of looking is first of all attentive. (2006, p. 75)

Weil's ideas have been developed as "attentive love" first in Iris Murdoch's (1971) *The Sovereignty of Good* and then in Sara Ruddick's (1989) *Maternal Thinking: Towards a Politics of Peace*. Murdoch, says Weil, meant by it, "the idea of a just and loving gaze directed upon an individual reality." This kind of attention is "the characteristic and proper mark of the active moral agent" (Murdoch, 1971, p. 33).

Many of the chapters gathered here show how courses invite and can evoke this kind of attention, as we see in the discussion of "Thinking Animals" and "Connecting Animal Cognition and Emotion with Ethical Reasoning in the Classroom." What is "mutual becoming" and "deterritorialization of human-horse relationships" but the asking of "what are you going through?" and awaiting the answer. (Spannring's chapter feels akin in spirit and approach and philosophy to "Joy" by ecofeminist philosopher Deborah Slicer.) Is asking "what are you going through?" the way in which animals become "significant sources of learning" for children as Joshua Russell discusses? Children might not know they are asking that question, but in the kinds of attention they bring to animals, they become receptive to the answers. When Karen Malone wants to protest "that's not true" at the idea that the only way children living in Australian urban landscapes encounter wild animals is by going to the zoo, is this not because she has brought attention to that urban landscape and knows children can too?—that there they will encounter possums as well as "kangaroos, mice, rats,

seagulls, pigeons, crows, flying fox, penguins, and dolphins, including other urban dwelling pets who share our homes"? And if we asked the animals in zoos what they are going through, what would they tell us? Aren't they already telling us something?

Jason Michael Lukasik suggests that "crossing epistemological borders" through narrative fiction is another way to bring attention to our neighbors (whatever species they are). Lynn Hunt's *Inventing Human Rights: A History* suggests that at the time of the French Revolution, "reading novels created a sense of equality and empathy through passionate involvement in the narrative" (Hunt, 2008, p. 39). She asks:

> Can it be coincidental that the three greatest novels of psychological identification of the eighteenth century—Richardson's *Pamela* (1740) and *Clarissa* (1747–48) and Rousseau's *Julie* (1761)—were all published in the period that immediately preceded the appearance of the concept of "the rights of man?" (2008, p. 39)

She suggests, "novels work on readers to make them more sympathetic toward others, rather than just self-absorbed, and therefore more moral, not less" (2008, p. 54). When the movie *Babe* appeared, so many children became vegetarians or vegans that the phenomenon received a name "Babe Vegetarians." It also catalyzed the actor who starred it in as the farmer, James Cromwell, to become a vegan and animal activist—sympathy at work making people more moral, not less.

The knowledge that one possesses a certain kind of privilege—a privilege that permits pleasure from the suffering and death of another—is often hidden or suppressed so that the pleasure can remain unproblematized. Hidden in the same way that what happens on factory farms is hidden because of ag-gag laws, controlling information that could aid in making ethical decisions. We know, but we don't want to register this knowing. What are you going through, cows, pigs, chickens, turkeys? We could argue that the goal of ag-gag laws is anti-pedagogical.

In her essay on school studies, Weil also says, "The capacity to give one's attention to a sufferer is a very rare and difficult thing; it is almost a miracle; it *is* a miracle" (1950, p. 75). Is this at the heart of the "meat paradox": the inability to overcome one's habits to allow oneself to give attention to a sufferer? Someone else's suffering has to matter as much—and be as present in one's thoughts as much as—or more than the desire to seek one's own pleasure.

As someone who has written extensively about the eating of animals, and has offered advice to vegans and vegetarians about the many defense mechanisms at work in meat eaters (particularly in a book I called *Living Among Meat Eaters*), I have thought a great deal about the resistance to veganism described in a few of the chapters here. I make two claims that may be applicable here: *People are perfectly happy eating vegan food as long as they don't know that is what they are doing* and, *people do not necessarily think of themselves as "meat" eaters.* Until a vegan enters the room with a plate filled with vegan food, or until the issue is raised in a class, most meat eaters see themselves merely as "eaters." At the same time they become aware they have (seemingly) made a commitment to a certain identity as an eater, they discover feelings of defensiveness.

I'd like to propose a way to test out the hypothetical statement put forth by students, "I couldn't give up meat": Offer the students a significant life experience. Here are a few ideas.

At the beginning of the semester, ask each class member to keep track in a food diary of what they are eating for a week. Later in the semester, ask the students to eat vegan for a week while keeping a diary of what they eat, what they feel, and what the reactions of others are. (Perhaps the most disarming defense of a vegan meal at a university will be, "I have to do it for a class.") Then ask the students to compute, based on the environmental information contained in *Livestock's Long Shadow* (Food and Agriculture Organization of the United Nations, 2008) or other environmental information such as *Food, Animals and the Environment* (Schlottmann & Sebo, forthcoming), their environmental footprint. Ask them to note how they are feeling.

When philosophy professors ask their students to follow a vegan meal plan for a while during class, they have found that it is during this liminal time of suspension from eating meat that students can actually allow their attention to interact with the experiences of individual animals who die to become food. Perhaps it is only when they are not complicit in these eating activities that harm animals and the Earth that they can learn without defensiveness. For the defensiveness they feel *and* their comfort from the status quo of meat meals together appear to suppress their openness to learn, their willingness to engage in class discussion, and their *attention.*

Another option: the class, depending on its size, is responsible as a class or as a group within the class to prepare a vegan meal for all to eat. If the task is done in groups, there could perhaps be a competition for the best vegan meal. Perhaps the students could identify the original source of

food items in their vegan meals (for instance, tofu originated in China, tempeh in Indonesia, soy milk in Japan). Such an approach might decenter their presumptions about the normativeness of their usual meals.

Or, perhaps a famous vegan chef should be invited to speak about their ideas. I know that Bryant Terry (2014) the phenomenally talented vegan chef, who focuses on foods of the African diaspora, has participated in campus events.

What-are-you-going-through pedagogy invites participation, transdisciplinarity, collective teams, and shared work. The courses and methods discussed here are, at heart, working to transform what remains rare and difficult. I'd love to take several of them. (And I am watching to see how my dreams about dragons change as I think about carboniferous plant fossils and folklore about dragons.)

Weil concludes her essay saying, "Academic work is one of those fields which contain a pearl so precious that it is worth while to sell all our possessions, keeping nothing for ourselves, in order to be able to acquire it" (1950, p. 76). Okay, perhaps a little overstated for the twenty-first century. But still, at this time, the stakes are very high. It is thought that Weil wrote the essay in April 1942 in the middle of World War II. We live in another time of deep trouble—not a world war but the time of the sixth extinction, of the Anthropocene, of climate change, and of factory farms. Learning how to learn about others—all kinds of others, not just human others—is perhaps one of the most important tasks we need to acquire. I'm thankful this book keeps us on this path.

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[1] Note: Page numbers followed by 'n' refer to notes.

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