# WHO SPEAKS FOR DEER?
# INCLUDING NONHUMANS IN DELIBERATIVE DEMOCRACY THROUGH MULTISPECIES COMMUNICATIVE DEMOCRACY AND DEMOCRATIC EDUCATION

By

Stephen Patrick Vrla

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Sociology—Doctor of Philosophy
Curriculum, Instruction, and Teacher Education—Dual Major

2019

ABSTRACT

WHO SPEAKS FOR DEER?
INCLUDING NONHUMANS IN DELIBERATIVE DEMOCRACY THROUGH
MULTISPECIES COMMUNICATIVE DEMOCRACY AND DEMOCRATIC EDUCATION

By

Stephen Patrick Vrla

Humans face a wide range of environmental issues, many of which are characterized by scientific uncertainty and values disagreement. One promising approach to solving these issues is deliberative democracy, a model of democratic decision making in which all those affected by a decision share their positions on it with one another and work toward a consensus. However, scholars and practitioners of deliberative democracy have largely overlooked nonhuman animals, ecosystems, and other nonhuman stakeholders affected by environmental issues and decisions about them. This dissertation uses the perspectives of environmental sociology, education, and policy to look closely at how deliberative democracy can include nonhuman stakeholders and what happens when it does. First, it theorizes multispecies communicative democracy (MCD), a theory of deliberative democracy that includes nonhuman stakeholders through direct participation and proxy representation, and applies the theory to the environmental issue of deer-human conflict. Second, it analyzes the social and educational factors influencing US American adults' support for MCD, as well as adults' own explanations of their support. Third, it uses action research to develop, implement, and analyze an MCD curriculum at a nature center. In closing, it highlights the implications of MCD for environmental sociology, policy, and education.

This dissertation is dedicated to Mom and Dad.

# ACKNOWLEDGMENTS

I could not have written this dissertation without the support of many individuals. First, my family: my mom, Christine; dad, Rolf; and brothers, Michael and Geoffrey. Mom and Dad, thank you for all the sacrifices you made to ensure that I received an excellent education. I will never be able to pay you back, but I will do my best to pay it forward. Michael and Geoffrey, thank you for always being available for me, even though I was not always available for you.

Second, my dissertation and guidance committee: my co-chairs, Linda Kalof and Elizabeth Heilman; and committee members, Tom Dietz, Matt Ferkany, and Carl Taylor. Linda, thank you for supporting my development as a scholar, and for giving me the freedom to explore research questions about which I was truly passionate. Dr. H, thank you for supporting my development as a citizen, and for encouraging me to use methodologies that reflect my values. Tom, thank you for treating me as your colleague from the moment I met you. Matt, thank you for helping me become a more effective theorist. Dr. Taylor, thank you for inspiring me to use my work to help others. Also my undergraduate mentor and unofficial committee member, Bill Lynn. Thank you for introducing me to the field of animal studies, and for convincing me that I could contribute to it.

Third, my graduate school colleagues: Blake, Cam, Charles, Jared, Jeny, Kayleigh, Mark, Ryan, Seven, Vivek, and others. All, thank you for supporting me through my coursework, assistantships, comprehensive exams, dissertation research, and other program requirements. More importantly, though, thank you for your friendship. It means more to me than you know.

Fourth, all those who supported my research. My colleagues and other co-researchers at the nature center, thank you for your support, time, and energy throughout the research process. Your help and wisdom have been invaluable to me. Anneliese Stattelman, thank you for your assistance, and for the insights you have offered me. Joe Hamm and Stephen Gasteyer, thank you for your help

and insights as well. Also the College of Social Science, Department of Sociology, and Animal Studies and Environmental Science & Policy Programs. Thank you for your financial support.

Finally, the most unconditionally loving companion I have ever had: my dog, Hermes. You will never read these words, but I hope you know how much you mean to me.

TABLE OF CONTENTS

LIST OF TABLES

# KEY TO ABBREVIATIONS

AAS-5: Animal Attitudes Scale-5

ASK: Assessment of Sustainability Knowledge

EE: environmental education

GSS: General Social Survey

MCD: multispecies communicative democracy

RPNC: Red Pines Nature Center

SAS: Sustainability Attitudes Scale

US: United States

# CHAPTER 1: INTRODUCTION

> "To limit the discussion to humans, their interests, their subjectivities, and their rights, will appear as strange a few years from now as having denied the right to vote of slaves, poor people, or women."
>
> —Bruno Latour, *The Politics of Nature: How to Bring the Sciences into Democracy,* p. 69

This dissertation is rooted in Latour's (2004) above prediction. If humans' limiting the discussion to ourselves will appear as strange a few years from now as past societies' having limited the discussion to affluent, white men appears to us, what factors will drive this shift in perspective? Moreover, how can we influence these factors to ensure that that the prediction comes true, and that the few years do not become a few decades or a few centuries? After all, we are in the midst of an ecological crisis. Over the past century, human activity has caused atmospheric carbon dioxide levels to increase by over 100 ppm (Scripps Institution of Oceanography, 2019). This figure signifies that we have permanently changed the planet's climate. Among other effects, this change is contributing to the planet's sixth mass extinction event (Ceballos, Ehrlich, & Dirzo, 2017). We are responsible for the extinction of over 200 vertebrate species, as well as the deaths of countless individual nonhuman animals. Put simply, we do not have a few years to shift our perspective, let alone a few decades or centuries.

## Necrophilous Ideologies and the Ecological Crisis

One approach to identifying the factors that will drive our shift in perspective is to investigate the factors at the root of our current perspective. In *The Heart of Man,* Fromm (2010) argues that one of these factors is necrophilia, or love of death: "the desire to transform the organic into the inorganic, to approach life mechanically, as if all living persons were things" (p. 37). Naturally, he argues, humans tend toward biophilia, or love of life: "a tendency to *preserve* life, and to

*fight* death…[and] to integrate and to unite" (Fromm, 2010, p. 41). Research on child development supports this argument. For example, Melson (2001) describes the numerous roles non-human animals play in children's lives and contends that an expanded understanding of these roles will provide new insights into children's cognitive and social development. In his ethnography of a preschool classroom, Myers (2007) found that animals are a means to children's normal development. In other words, children tend to integrate with other living beings, and this integration becomes an important component of their sense of self. Further research indicates that humans' biophilous tendencies continue into adulthood. For instance, Haraway (2003) asserts that humans' lives are so entangled with those of animals and the environment that "the relation is the smallest unit of analysis" (p. 24). She supports her assertion with stories about dog-human agility teams, companion species who depend on each another to flourish (Haraway, 2003). However, the concept of companion species extends outward in both space and time such that humans need to be in relation with other species to be complete.

While humans tend toward biophilia, Fromm (2010) argues that they can also tend toward necrophilia. Again, research on child development supports this argument. According to Melson (2001), children can show interest in animals through harmful interactions with them as well as beneficial ones. Her observation that "[b]oth kindness and cruelty to animals coexist in many children" (Melson, 2001, p. 182) bears a particularly striking resemblance to Fromm's (2010) theory. In her survey of the animal-human relationship throughout history, Kalof (2007) uncovers numerous examples of humans' necrophilous tendencies, including "a lifesize, fully articulated robotic animatronic chimpanzee bust that, with infra-red vision and stereoscopic hearing can emulate the sounds, movements, and behaviours of a live chimp" (Kalof, 2007, p. 163). As wild chimpanzee populations and their habitats are shrinking, humans are replacing them with mechanical simulations—again, a striking resemblance to Fromm's (2010) theory.

Whether humans tend toward biophilia or necrophilia depends in part upon social forces like ideology (Gunderson, 2014). McLaren (2009) defines ideology as "a way of viewing the world, a complex of ideas, various types of social practices, rituals, and representations *that we tend to accept as natural and as common sense*" (McLaren, 2009, p. 69). In Western society, a dominant ideology is anthropocentrism: a way of viewing the world in which humans' superiority to animals and the environment is natural. A clear example of it is when humans justify the domination of nature because animals and the environment exist for humans to use. Along with anthropocentrism, instrumental rationality and neoliberalism dominate Western society. Instrumental rationality is a way of viewing the world in which "the criteria of rational decision" (Habermas, 1968/1970, p. 81) have priority over values such that humans' actions and even their thoughts are "governed by *technical rules* based on empirical knowledge" (pp. 91–92) rather than social norms. An example of instrumental rationality is when humans support concentrated animal feeding operations because they are more efficient than small farms. Neoliberalism is a way of viewing the world in which the belief that "human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade" (Harvey, 2007, p. 2) goes unquestioned. An example of neoliberalism is when humans challenge regulations on carbon emissions because they interfere with individuals' liberties and would be bad for the economy.

Anthropocentrism, instrumental rationality, and neoliberalism have driven members of Western society from biophilia toward necrophilia. That is, these societal values have influenced individuals' values. In their research on children's socialization, Cole and Stewart (2014) detail this process. They characterize society as an anthroparchy, "a social system, a complex and relatively stable set of hierarchical relationships in which 'nature' is dominated through formations of social organization which privilege the human" (Cole & Stewart, 2014, p. 27). For these relationships to

continue, children must learn to accept them without question (Cole & Stewart, 2014). Society ensures their unquestioning acceptance by socializing them to accept anthropocentric discourses like "food animals" and practices like meat eating through family, mass media, formal education, digital media, and other contexts (Cole & Stewart, 2014). As children learn that animals' value depends on their usefulness to humans, they are driven from biophilia toward necrophilia. Pedersen (2010) further details children's socialization in the context of schools. In a transcript from a field trip to a bird observatory, she details how a guide taught students that "[t]he birds should neither be shocked nor injured…but they *can't* get shocked and have no thoughts about the future…the birds are fantastic individuals who can convert fat to energy. Quite simply a flying chemistry lab" (Pedersen, 2010, p. 27). The guide's anthropocentric, instrumental rational, and perhaps even neoliberal attitude toward birds may not reflect other educators' attitudes toward animals and the environment, but he clearly sees them as things and transmits his views to students. On a broader level, such regression toward necrophilia is "intimately and necessarily linked" to the domination of nature and the ecological crisis (Gunderson, 2015, p. 226).

## Deliberative Democracy and the Ecological Crisis

Given the link between necrophilous ideologies and the ecological crisis, how can we address the crisis. One promising approach to addressing the ecological crisis is deliberative democracy, an approach to democracy in which citizens make decisions through deliberation instead of aggregation; that is, they share their positions on issues and attempt to reach consensus on them rather than, or at least before, voting on them (Chappell, 2012). To be sure, deliberative democracy is not often proposed as a solution to the ecological crisis; however, scholars have found that deliberative decisions about social issues, including environmental issues, can be more effective than aggregative decisions. In a review of the empirical literature on deliberative democracy, for example, Delli Carpini, Cook, and Jacobs (2004) found that democratic deliberations about social issues can

result in decisions that are substantively and procedurally satisfactory, and that participating in deliberations can increase citizens' political engagement and efficacy. Similarly, Dietz and Stern (2008) found that democratic deliberations and other forms of public participation in environmental decision making can lead to higher quality and more legitimate decisions and build citizens' civic engagement and capacity. To an extent, more effective decisions about environmental issues would help address the ecological crisis.

That said, deliberative democracy is not only a promising approach to addressing the ecological crisis because deliberative decisions can be more effective than aggregative decisions, but also because the practice of deliberative democracy is rooted in democratic norms that participants in deliberations may internalize. Young (2000) identifies four such norms: norms of inclusion, equality, reasonableness, and publicity. The norm of inclusion states that "all those whose basic interest are affected by a decision ought to be included in the deliberatively democracy [*sic*] process" (Young, 2000, p. 27); the norm of equality states that all those affected should be included equally; the norm of reasonableness states that participants must be willing "to listen to others who want to explain to them why their ideas are incorrect or inappropriate" (p. 24); and the norm of publicity states that participants must hold themselves accountable to one another. As people participate in deliberative democracy and other forms of participatory democracy, they can come to internalize these norms; that is, participatory democracy can "enlarge the understanding and the sympathies of interest-motivated individuals and transform them into citizens capable of reassessing themselves and their interests in terms of the newly invented communal norms and newly imagined public goods" (Barber, 2004, p. 173). This participation and the preference transformation associated with it that has the potential to help solve the ecological crisis.

If deliberative democracy is to reach this potential, though, it must include all those affected by issues. Most scholars and practitioners of deliberative democracy have only applied democratic

norms to humans. As a result, participants in deliberative democracy may internalize norms of inclusion, equality, reasonableness, and publicity, but these norms only extend to humans. To the extent that scholars and practitioners of deliberative democracy apply democratic norms to nonhuman animals and ecosystems, it may come closer to reaching this potential to help solve the ecological crisis.

## Environmental Education and the Ecological Crisis

Another promising approach to addressing the ecological crisis is environmental education, or education that focuses on humans' relationship with nonhuman animals and the environment. Whereas deliberative democracy is not often proposed as a solution to the ecological crisis, environmental education is frequently lauded as one of the most promising solutions to it. That said, it has not yet fulfilled this promise. In 1975, the United Nations Educational, Scientific, and Cultural Organization adopted the Belgrade Charter in an effort to change humans' behavior through environmental education (EE) (Van Matre, 1990). Since then, environmental educators in formal and informal settings have taught students at all grades levels about environmental issues. Nevertheless, humans have continued to behave in environmentally harmful ways. According to Kollmus and Agyeman (2002), the EE movement has failed because of its incorrect belief that increasing students' environmental knowledge will necessarily increase their pro-environmental behavior. In addition to environmental knowledge, numerous factors influence humans' pro-environmental behavior, ranging from internal factors including motivation, values, attitudes, environmental awareness, emotional involvement, locus of control, and responsibility and priorities to external factors like economic, social, and cultural institutions (Hungerford & Volk, 1990; Kollmuss & Agyeman, 2002; Dietz, Fitzgerald, & Shwom, 2005; Heberlein, 2012). Put simply, environmental education must do more than increase students' environmental knowledge if it is to help solve the ecological crisis.

Moreover, many approaches to environmental education that do more than increase students' knowledge do not to challenge the anthropocentrism, instrumental rationality, and neoliberalism that have driven members of Western society from biophilia toward necrophilia. In his history of the EE movement, Van Matre (1990) argues that EE initially focused on human causes of environmental issues, but that this focus became blurry. Its blurring was not accidental, but rather the result of infiltration by anthropocentrism and other ideologies to the extent that "some of the agencies and industries that helped create our environmental problems in the first place, are now suddenly sponsoring things in the environmental education field" (Van Matre, 1990, p. 34). Kahn (2010) extends Van Matre's argument, connecting traditional EE to instrumental rationalism and neoliberalism through the approach of education for sustainable development. He labels education for sustainable development a "floating signifier" (Kahn, 2010, p. 14) that may signify biophilia or criticality in theory, but has meant anthropocentrism in practice. Bonnett (2007) critiques EE policy for this anthropocentric focus. In a broader critique of education, Bowers (2002) asserts that "current educational reform agendas are based on taken-for-granted cultural assumptions (root metaphors) encoded in the language that allows for the conceptualization of certain relationships while hiding others" (p. 22). The same root metaphors of anthropocentrism, mechanism, and economism lie at the roots of traditional EE and the environmental crisis, making solving the ecological crisis through traditional EE more difficult (Bowers, 2002). If EE is to help solve the ecological crisis, it must challenge the anthropocentric ideologies upon which the crisis is founded.

## Dissertation Outline

In this dissertation, I attempt to help ensure that Latour's (2004) prediction is accurate by theorizing an approach to deliberative democracy that includes nonhuman animals and ecosystems, investigating the US American public's support for it, and exploring how it can be incorporated into environmental education. In the first core chapter, I draw upon the work of social theorists like

Young (2000) and environmental and animal studies scholars like Kohn (2013) to conceptualize an approach I call "multispecies communicative democracy" and apply it to the issue of deer-human conflict in the United States. A key aspect of multispecies communicative democracy is including humans as proxy representatives for nonhuman stakeholders. I first review the current literature on deliberative democracy, an approach to democratic decision making in which stakeholders share their positions, attempt to reach a consensus, and reflect on their decision. Focusing in particular on traditional theories of deliberative democracy, I find that two key requirements of these theories are the inclusion of all affected individuals as stakeholders and rational communication among stakeholders. These requirements contradict themselves in the case of nonhuman stakeholders, as nonhuman animals and ecosystems are affected by deliberations but incapable of rational communication. To overcome this contradiction, I draw upon Young's (2000) work on communicative democracy, which extends the requirement of communication to encompass non-rational communication like storytelling, and Kohn's and other scholars' work in the fields of environmental and animal studies, which emphasizes humans' potential for non-rational communication with animals and nature. The outcome of this work is a theoretical approach to democratic deliberation I call multispecies communicative democracy, which includes animals and ecosystems as stakeholders in deliberations through both direct participation and proxy representation by humans. Having developed this theoretical approach, I tested its practicality through a thought experiment in which I applied it to the problem of deer-human conflict in the United States. I found that while including nonhuman animals and ecosystems in democratic deliberations through direct participation is theoretically plausible, including them through proxy representation by humans is much more practical. In closing, I offer a set of procedures for multispecies communicative democracy and a list of requirements for proxy representatives.

In the second core chapter, I explore the experiential, social, educational, and attitudinal factors influencing US American adults' support for multispecies communicative democracy, particularly their support for including proxy representatives for nonhumans. Adults' attitudes toward animals and sustainability are the strongest predictors of their support for including proxy representatives, suggesting that increasing their pro-animal and pro-sustainability attitudes would increase their support for including proxies. I first review the literature on factors influencing people's pro-animal and pro-sustainability behaviors, finding that experiential factors like seeing animals and nature; social factors like age, gender, race, religion, political ideology, geographic location, and household income; educational factors like education level and sustainability knowledge; and attitudinal factors like attitudes toward animals and sustainability can all contribute to pro-animal and pro-sustainability behavior. Having reviewed the literature, I hypothesize that the above experiential, social, educational, and attitudinal factors also influence US American adults' support for including humans as proxy representatives for ecosystem, animal, and plant stakeholders in democratic deliberations. I tested my hypotheses by surveying a nationally representative convenience sample of 600 US American adults using Qualtrics. The survey included a scenario about a hypothetical democratic deliberation in which respondents were participating and a question about their level of support for including a proxy representative for ecosystem, animal, or plant stakeholders in that deliberation. To measure the effect of experiences with animals and nature, participants were randomly assigned to an experimental group, in which they were shown a photograph of an ecosystem, animal, or plant before answering the question about their level of support; or a control group, in which they were not. The survey also included demographic questions, the Assessment of Sustainability Knowledge, the Sustainability Attitudes Scale, and the Animal Attitudes Scale-5. I found that participants who were shown a photograph of a nonhuman animal tended to be more supportive of including a proxy representative for animal stakeholders in

the hypothetical deliberation, but participants shown photographs of ecosystems or plants were not more supportive of including a proxy representative for ecosystem or plant stakeholders, respectively. I also found that participants with stronger pro-sustainability attitudes tended to be more supportive of including proxy representatives for ecosystem, animal, or plant stakeholders. I conclude that improving people's sustainability knowledge may seem to be an effective means of increasing their support for multispecies communicative democracy, but strengthening their pro-sustainability attitudes is likely more effective.

In the third and culminating core chapter, I detail my efforts to iteratively develop, implement, and evaluate a multispecies communicative democracy curriculum to build students' support for and ability to engage in multispecies communicative democracy. This chapter combines the findings of the previous two chapters and shows both what can happen when multispecies communicative democracy is put into practice on a small scale and how it can be put into practice on a broader scale. These efforts take the form of an action research case study at a nature center at which I work as an environmental educator. During the first phase of the study, I conducted an artifact analysis of the center's written and spatial curricula. I found that while the curricula teach students several environmental discourses, including anthropocentric and non-anthropocentric ones, they do not teach them to think critically about these discourses. During the second phase, I shared my findings with staff members and conducted individual interviews with them about their thoughts on improving the curricula. They all agreed that the center would benefit from a new curricular framework incorporating principles of multispecies communicative democracy. I then developed a multispecies communicative democracy curriculum, shared it with staff members and conducted a focus group interview with them to get their feedback. During the third and subsequent phases, I taught the curriculum during one of the center's weeklong summer camps for elementary school students. I collected data on my students' learning through individual interviews, group discussions,

and reflective journals they kept, and I collected data on my teaching by keeping my own reflective journal. I then analyzed the data, revised the curriculum, and shared the revised curriculum with the center's staff for additional feedback. Overall, I taught and revised the curriculum five times. One result of the study is the final curricular framework itself and a set of research-based best practices on using it, which the center will use to train new educators. Another result is my overall findings about what happened when my students engaged in multispecies communicative democracy about authentic environmental problems at the center. To be sure, the findings are specific to those cases and do not predict what would happen in other cases. However, they do provide description of some potential effects of multispecies communicative democracy on people's decision making. They also suggest useful paths for future research.

WORKS CITED

WORKS CITED


Barber, B. R. (2004). *Strong democracy: Participatory politics for a new age* (20th anniversary ed.). Berkeley: University of California Press.

Bonnett, M. (2007). Environmental education and the issue of nature. *Journal of Curriculum Studies,* 39(6), 707–721. https://doi.org/10.1080/00220270701447149

Bowers, C. A. (2002). Toward an eco-justice pedagogy. *Environmental Education Research,* 8(1), 21–34. https://doi.org/10.1080/13504620120109628

Ceballos, G., Ehrlich, P. R., & Dirzo, R.. (2017). Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. *PNAS, 114*(30), E6089–E6096. https://doi.org/10.1073/pnas.1704949114

Chappell, Z. (2012). *Deliberative democracy: A critical introduction.* New York, NY: Palgrave Macmillan.

Cole, M., & Stewart, K.. (2014). *Our children and other animals: The cultural construction of human-animal relations in childhood.* Farnham, UK: Ashgate Publishing Limited.

Delli Carpini, M., Cook, F. L., & Jacobs, L. R. (2004). Public deliberation, discursive participation, and citizen engagement: A review of the empirical literature. *Annual Review of Political Science, 7,* 315–344. https://doi.org/10.1146/annurev.polisci.7.121003.091630

Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annual Review of Environment and Resources, 30,* 335–372. https://doi.org/10.1146/annurev.energy.30.050504.144444

Dietz, T., & Stern, P. C. (Eds.). (2008). *Public participation in environmental assessment and decision making.* Washington, DC: The National Academies Press.

Fromm, E. (2010). *The heart of man: Its genius for good and evil.* Riverdale, NY: American Mental Health Foundation.

Gunderson, R. (2014). Erich Fromm's ecological messianism: The first biophilia hypothesis as humanistic social theory. *Humanity & Society, 38*(2), 182–204. https://doi.org/10.1177/0160597614529112

Gunderson, R. (2015). Environmental sociology and the Frankfurt School 1: Reason and capital. *Environmental Sociology, 1*(3), 224–235. https://doi.org/10.1080/23251042.2015.1054022

Habermas, J. (1970). *Toward a rational society: Student protest, science, and politics* (J. Shapiro, Trans.). Boston, MA: Beacon Press. (Original work published 1968)

Haraway, D. (2003). *The companion species manifesto: Dogs, people, and significant otherness.* Chicago, IL: Prickly Paradigm Press.

Harvey, D. (2007). *A brief history of neoliberalism.* Oxford, UK: Oxford University Press.

Heberlein, T. A. (2012). *Navigating environmental attitudes.* Oxford, UK: Oxford University Press.

Hungerford, H. R., & Volk, T. R. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education, 21*(3), 8–21. https://doi.org/10.1080/00958964.1990.10753743

Kahn, R. (2010). *Critical pedagogy, ecoliteracy, & planetary crisis: The ecopedagogy movement.* New York, NY: Peter Lang.

Kalof, L. (2007). *Looking at animals in human history*. London, UK: Reaktion Books.

Kohn, E. (2013). *How forests think: Toward an anthropology beyond the human.* Berkeley: University of California Press.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Research, 8*(3), 239–260. https://doi.org/10.1080/13504620220145401

Latour, B. (2004). *Politics of nature: How to bring the sciences into democracy.* Cambridge, MA: Harvard University Press.

McClaren, P. (2009). Critical pedagogy: A look at the major concepts. In A. Darder, M. P. Baltodano, & R. D. Torres (Eds.), *The critical pedagogy reader* (2nd ed.) (pp. 61–83). New York, NY: Routledge.

Melson, G. F. (2001). *Why the wild things are: Animals in the lives of children.* Cambridge, MA: Harvard University Press.

Myers, G. (2007). *The significance of children and animals: Social development and our connections to other species* (2nd ed.). West Lafayette, IN: Purdue University Press.

Pedersen, H. (2010). *Animals in schools: Processes and strategies in human-animal education.* West Lafayette, IN: Purdue University Press.

Scripps Institute of Oceanography. (2019). Carbon dioxide measurements. Retrieved from http://scrippsco2.ucsd.edu/

Van Matre, S. (1990). *Earth education: A new beginning.* Greenville, NC: The Institute for Earth Education.

Young, I. M. (2000). *Inclusion and democracy.* Oxford, UK: Oxford University Press.

# CHAPTER 2: INCLUDING NONHUMAN STAKEHOLDERS IN DELIBERATIVE DEMOCRATIC THEORY AND PRACTICE

In 2014, the City of Ann Arbor, Michigan, began researching deer management options in response to its residents' concerns about its growing deer population (City of Ann Arbor, 2019). One year later, it approved a deer management plan that included annual deer culls for the next four years and additional research into the viability of deer sterilization program (City of Ann Arbor, 2019). Before and after making this decision, the city involved many individuals and groups affected by it in the decision-making process As it was researching options, for example, the city partnered with Washtenaw County Parks and Recreation, the University of Michigan, and the Humane Society of Huron Valley (City of Ann Arbor, 2019). Before approving the plan, it sought feedback from the Michigan Department of Natural Resources and both residents who supported a cull and residents who opposed one (City of Ann Arbor, 2019). After approving the plan, it continued to work with these and other stakeholders to evaluate the cull and research, implement, and evaluate a sterilization program (City of Ann Arbor, 2019). In these ways, the city's deer management process may seem like a victory for democratic decision making.

However, it was actually a failure. While the process included many stakeholders, it also excluded many: 386 deer were killed over the course of four years, and at no point during that time could they have expressed their interest in surviving (City of Ann Arbor, 2019). Ann Arbor is by no means the only community that has failed to include nonhuman animals in its decision-making processes. Indeed, so few communities include these and other nonhuman stakeholders[1] that the

[1] In general, I use the term nonhuman stakeholders to refer to all of the individual nonhuman beings and sets of relationships among individual nonhuman beings that are affected by a decision; however, in this chapter, I limit my discussion of nonhuman stakeholders for the sake of clarity to one example of nonhuman beings and one example of sets of relationships: nonhuman

mere thought of including them may seem ridiculous. That said, the fact that failures to include nonhuman stakeholders are common and normal does not mean they are morally justifiable.

In this chapter, I respond to these failures of decision making by theorizing multispecies communicative democracy, a theory and set of practices for including nonhuman stakeholders in democratic decision making that is rooted in the theory and practice of deliberative democracy. First, I explain what deliberative democracy is and why nonhuman stakeholders should be included in it. Second, I review the literature on including nonhuman stakeholders in deliberative democracy. Third, I describe my theoretical methods. Fourth, I integrate deliberative democracy with theories of more-than-human communication to develop a theory of multispecies communicative democracy. Fifth, and finally, I apply the theory of multispecies communicative democracy to Ann Arbor's deer management process to create a set of practices for multispecies democratic communication.

Through this process, I aim to make at least three contributions. First, I aim to combine multiple, isolated theories for including nonhuman stakeholders in deliberative democracy into a single, integrated theory that scholars can use in their future work. Second, I aim to develop a set of practices for including nonhuman stakeholders in deliberative democracy that practitioners can incorporate into environmental decision making and environmental education. Third, I aim to uncover specific aspects of the theory and practices that warrant further attention.

**Why Nonhuman Stakeholders Should Be Included in Deliberative Democracy**

Before theorizing multispecies communicative democracy, I must first explain what deliberative democracy is and argue that nonhuman stakeholders should be included in it.[2] Broadly,

---

animals and ecosystems, respectively. By nonhuman animals, I mean nonhuman individuals in the kingdom *Animalia*. By ecosystems, I mean sets of relationships among living beings and nonliving factors.

[2] If readers already agree with this argument, they can move onto the next section.

deliberative democracy is an approach to making decisions about issues in which the individuals affected by an issue, or its stakeholders, share their positions on it with one another and work to reach a decision upon which they all agree, or a consensus (Bächtiger, Dryzek, Mansbridge, & Warren, 2018). To argue that nonhuman stakeholders should be included in deliberative democracy, I will use the all affected interests principle. I will also respond to four common challenges to including them in it: first, that including nonhuman stakeholders in deliberative democracy is unnecessary; second, that it is illegitimate; third, that it is impractical; and fourth, that it already happens.

**Argument: The All Affected Interests Principle**

Nonhuman stakeholders should be included in deliberative democracy because all those whose interests are affected by decisions should be included in decision-making processes, and nonhuman stakeholders have interests that can be affected by decisions. The normative statement that all those whose interests are affected by decisions should be included in decision-making processes is called the all-affected principle or all-affected interests principle (Goodin, 2007).[3] It is popular in the field of democratic theory, particularly deliberative democratic theory, as a tool for defining the boundary of the public (Goodin, 2007). While most theorists have limited its use to humans, Garner (2016b) has used it to argue that nonhuman animals should be incorporated into democratic theory, and Eckersley (1999) has used it to argue that nature should be represented in discursive dialogue.

[3] I acknowledge that some democratic theorists have challenged the usefulness of the all affected interests principle; however, responding to such challenges is outside this chapter's scope. For an example of such challenges, see Näsström (2011).

**Challenge #1: Including Nonhuman Stakeholders Is Unnecessary**

One challenge to including nonhuman stakeholders in deliberative democracy is the following: *For a decision to be legitimate, all stakeholders whose interests are affected by it must be included in the decision-making process; however, nonhuman stakeholders do not have interests that can be affected by decisions, so including them in decision-making processes is unnecessary.* This challenge hinges upon two terms: "interests" and "affected." The literature on the all affected interests principle is equivocal on the meaning of interests, with some scholars defining it narrowly (for example, see Warren, 2017) and others defining them more broadly (for example, see Ball, 2006). Following Ball (2006), I define interests such that "x is in A's interest if x is necessary for and/or conducive to A's functioning and/or flourishing. A need not be consciously aware of or able to articulate the claim that x is in A's interest" (p. 137).[4] The literature on the all affected interests principle is also equivocal on the meaning of affected, with some scholars defining it narrowly (for example, Miller, 2009) and others defining it more broadly (for example, see Goodin, 2007). Following Goodin (2007), I define affected such that A is affected by y if y can possibly produce an effect upon A.[5]

To have interests, nonhuman animals and ecosystems must be capable of functioning and/or flourishing, but not necessarily capable of being consciously aware or articulating claims. All organisms, including nonhuman animals, function, and at least nonhuman animals can flourish (for example, see Nussbaum, 2006). Indeed, the 2012 Cambridge Declaration on Consciousness affirms that many nonhuman animals are consciously aware (Low, 2012), and theories of more-than-human

[4] I acknowledge that other scholars may challenge this definition for being too broad; however, responding to such challenges is outside this chapter's scope. For a response to such challenges, see Ball (2006).

[5] I acknowledge that other scholars may challenge this definition for being too broad; however, responding to such challenges is outside this chapter's scope. For a response to such challenges, see Miller (2009).

communication show that all nonhuman animals can articulate claims (Kohn, 2013). I describe these theories of communication at length in a later section; briefly, though, they recognize that communication is not limited to humans (Kohn, 2013). Like nonhuman animals, ecosystems function and are capable of flourishing (for example, see Schlosberg, 2007). Ecosystems may not be consciously aware, at least not in the same way that humans and many nonhuman animals are, but the theories of more-than-human communication I describe in a later section show that they, too, can articulate claims (Kohn, 2013). Nonetheless, even if nonhuman stakeholders were incapable of being consciously aware or articulating claims, they would still be capable of functioning and/or flourishing and therefore have interests. For nonhuman stakeholders' interests to be affected by a decision, it must possibly produce effects upon them. Undoubtedly, at least some decisions produce effects upon at least some nonhuman stakeholders' interests. Thus, including nonhuman stakeholders in deliberative democracy is necessary.

**Challenge #2: Including Nonhuman Stakeholders Is Illegitimate**

A second challenge to including nonhuman stakeholders in deliberative democracy is the following: *For a deliberation to be legitimate, all stakeholders have to deliberate; however, nonhuman stakeholders are incapable of deliberating, so including them is illegitimate.* This challenge hinges upon the term "deliberation" and the claim that excluding nonhuman stakeholders because they cannot deliberate is ethically defensible. The literature on deliberative democracy is equivocal on the meaning of deliberation, with some scholars limiting it to the exchange of rational arguments and others opening it to other forms of communication (Bächtiger et al., 2018). Following Bächtiger et al.

(2018), I define deliberation as "mutual communication that involves weighing and reflecting on preferences, values, and interests regarding matters of common concern" (p. 2).[6]

To fully deliberate, nonhuman animals and ecosystems must be capable of communicating by expressing interests; understanding other stakeholders' interests; and weighing and reflecting on these interests. Theories of more-than-human communication, which I describe in detail in a later section, show that all nonhuman stakeholders can express their interests, and some of them can understand other stakeholders' interests (Kohn, 2013). Moreover, those nonhuman stakeholders who cannot understand other stakeholders' interests can still indirectly deliberate through mediated participation like Clifford's (2012) "collaborative speech," in which people with communicative disabilities and their caregivers deliberate together. Thus, including nonhuman stakeholders can be legitimate.

That said, even if nonhuman stakeholders could not deliberate, excluding them from deliberative democracy for that reason would be ethically problematic. Full deliberation may require certain communicative capabilities, but they are secondary to deliberative ideals. One such ideal is the norm of inclusion, which states that "all those whose basic interests are affected by a decision ought to be included in the deliberatively democracy [*sic*] process" (Young, 2000, p. 27). According to this norm, including nonhuman stakeholders in deliberative democracy is a matter of justice that supersedes the need for all stakeholders to fully deliberate. To illustrate this point, consider the question of whether to include a currently-excluded group of human stakeholders. If one accepts that these human stakeholders are affected by a decision, continuing to exclude them because they cannot fully deliberate is ethically indefensible. After all, being able to deliberate is not a morally

[6] I acknowledge that other scholars may challenge this definition for being too broad; however, responding to such challenges is outside this chapter's scope. For a response to such challenges, see Bächtiger et al. (2018).

significant quality. Rather than continue excluding the currently-excluded human stakeholders, why not allow them to participate however they are able? Unless one believes that human stakeholders are intrinsically superior to nonhuman stakeholders, the same argument applies to the question of whether to include nonhuman stakeholders.[7]

**Challenge #3: Including Nonhuman Stakeholders Is Impractical**

A third challenge to including nonhuman stakeholders in deliberative democracy is the following: *If all nonhuman stakeholders affected by a decision were included in deliberations about it, deliberations would require radical changes in location and take much more time; therefore, including nonhuman stakeholders is impractical.* This challenge hinges upon two claims: first, that including nonhuman stakeholders would require radical changes in setting and take much more time; and second, that continuing to exclude nonhuman stakeholders for that reason is ethically defensible. To an extent, the first claim is accurate. If one assumes that each stakeholder is entitled to being physically present during deliberations, which is a reasonable assumption, including some nonhuman stakeholders like deer or forests would require changes in deliberative settings. Similarly, if one assumes that each stakeholder is entitled to a certain amount of time to communicate during a deliberation, also reasonable, including any nonhuman stakeholders would require changes in deliberative timeframes.

However, the claim that including nonhuman stakeholders would take much more time and require radical changes in setting is misguided. I explain this point at length in a later section. Briefly, though, the amount of time could be limited by allowing collaborative speech (Clifford, 2012), letting some stakeholders represent others (Young, 2000), and restricting inclusion to the stakeholders most affected by a decision. Additionally, the changes in setting could be addressed by

[7] I acknowledge that many people do believe that humans are intrinsically superior to nonhuman animals and ecosystems; however, critiquing this belief is outside this chapter's scope. For a response to this belief, see Plumwood (1993).

including photographic representations of nonhuman stakeholders and holding some deliberations outdoors. Thus, including nonhuman stakeholders can be practical.

That said, even if including nonhuman stakeholders would take much more time or require radical changes in setting, continuing to exclude them for that reason is ethically indefensible. So long as nonhuman stakeholders' interests are affected by decisions, including them is a matter of justice that supersedes concerns about time and setting. To illustrate this point, return to the question of whether to include a currently-excluded group of human stakeholders. If one accepts that these human stakeholders are affected by a decision, continuing to exclude them because including them would take more time, require a different setting, or not be ideal would be ethically indefensible. After all, the already-included human stakeholders do not possess any morally significant quality that justifies their continued inclusion and the currently-excluded human stakeholders' continued exclusion. Indeed, if the only reason to continue excluding the currently-excluded human stakeholders is that including them would take more time or require a change of setting, why not address these issues by excluding the already-included human stakeholders instead? Unless one believes that human stakeholders are intrinsically superior to nonhuman stakeholders, the same argument applies to the question of whether to include nonhuman stakeholders.

**Challenge #4: Nonhuman Stakeholders Are Already Included**

A fourth challenge to including nonhuman stakeholders in deliberative democracy is the following: *Scientists, advocates, and other citizens who participate in deliberations act as nonhuman stakeholders' representatives; therefore, nonhuman stakeholders are already included.* This challenge hinges upon two claims: first, that having representatives is equivalent to being included in deliberations; and second, that scientists, advocates, and other citizens act as nonhuman stakeholders' representatives in deliberations. To an extent, the first claim is accurate. While Young (2000) acknowledges the

importance of including stakeholders in deliberations through direction, she and most other scholars agree that including stakeholders through representation is necessary.

That said, scientists, advocates, and other citizens often fall short of Young's (2000) standards for representatives. I explain this point at length in a later section. Briefly, though, Young's (2000) standards for representatives are that representatives are authorized by and accountable to their constituents; that representatives represent constituents' interests, opinions, and perspectives; and that marginalized groups of constituents receive special representation. Scientists, advocates, and other citizens may meet some of these standards, but they do not meet all of them. For example, a wildlife biologist representing a population of wolves in a deliberation may have a clear understanding of the wolves' interests and a strong commitment to representing them, but to my knowledge, scientists in such positions are in no way authorized by or accountable to nonhuman stakeholders. That is, the biologist would have no way to seek authorization before representing the wolves or experience accountability for misrepresenting them. Similarly, an environmental advocate representing a forest may have a clear understanding of its interests and a strong commitment to representing them, but to my knowledge, ecosystems do not receive any form of special representation. In other words, the forest would not be treated differently as a historically excluded stakeholder than human stakeholders.

## Literature Review

Before theorizing multispecies communicative democracy, I will also review the existing theoretical literature on including nonhuman stakeholders in deliberative democracy. This literature tends to focus on including either nonhuman animals or ecosystems and on including them through either representation by humans or direct participation. Combining these foci creates four categories: first, including ecosystems through representation; second, including nonhuman animals

through representation; third, including nonhuman animals through participation; and fourth, including ecosystems through participation.

**Including Ecosystems Through Representation**

Much of the theoretical literature on including nonhuman stakeholders in deliberative democracy falls into the category of including ecosystems through representation. One of the first scholars to theorize representing ecosystems in democratic processes is Dobson (1996), who argues that some humans should serve as proxy representatives who act on behalf of nature. Instead of considering their own interests, these representatives would consider ecosystems' interests. Such proxy representation could result in what Mills (1996) describes as "multi-member constituencies in which some of the representatives were expected to represent the interests of their non-human constituency members" (p. 110). Goodin (1996) focuses specifically on representing ecosystems in deliberations, contending that humans can more effectively represent them by incorporating nature's interests into their own. That is, humans can represent ecosystems by considering their interests in addition to their own when deliberating in the same way that a parent considers their children's interests in addition to their own. Eckersley (1999) further suggests that representing ecosystems in deliberations through a procedural norm like the precautionary principle would be more parsimonious than proxy representation.

Other scholars have challenged efforts to represent ecosystems in deliberations through proxy representation or interest incorporation. For example, O'Neill (2001) identifies two challenges: first, that humans have historically used representation to perpetuate the oppression of marginalized human groups; and second, that humans cannot be authorized by ecosystems, be held accountable to them, or know their interests well enough to represent them. He addresses the first challenge by arguing that stakeholders who can speak for themselves should, but that representing stakeholders who cannot speak for themselves, including ecosystems as well as infants and future

human generations, is legitimate (O'Neill, 2001). However, he finds the second challenge more problematic and ultimately sees no solution to it: "Given the limited sources of legitimacy for the representation of nonhumans and future generations, the contestability of claims to speak for those groups are I suspect ultimately ineliminable" (O'Neill, 2001, p. 497). Smith (2003) likewise highlights the challenges of representing ecosystems, including the fact that representatives would have to represent ecosystems' positions while also being open to changing their positions over the course of a deliberation. He does not dismiss the possibility of representing ecosystems, but does note that addressing its challenges will require imagination, experimentation, and a willingness to consider other approaches (Smith, 2003). Dryzek (2002) does not directly engage with O'Neill (2001) or Smith (2003), but his discussion of green democracy suggests that representing ecosystems through proxy representation and interest incorporation can both be legitimate. For example, he argues that ecosystems may not be able to speak as humans do, but they can still communicate through feedback signals (Dryzek, 2002). Moreover, humans can interpret these signals as a demand upon them to act in a certain way (Dryzek, 2002). By paying attention to feedback signals and other communication from ecosystems, humans can thus gain insight into ecosystems' interests that makes their representation of them more legitimate. Over time, these signals may even become a source of authorization and accountability: as humans act on behalf of ecosystems' interests, the ecosystems will send additional feedback signals indicating whether the actions met their interests.

**Including Nonhuman Animals Through Representation**

A considerable amount of the theoretical literature on including nonhuman stakeholders in deliberative democracy also falls into the category of including nonhuman animals through representation. Some scholars who have theorized including ecosystems through representation have also included nonhuman animals. Dobson (1996) addresses both nonhuman animals and ecosystems in his discussion of proxy representation, and Eckersley (1999) refers to the benefits of

the precautionary principle on nonhuman species as well as ecosystems. Goodin (1996) and Dryzek (2002) emphasize ecosystems, but their justifications for including them suggest that they also include nonhuman animals in their conceptions of nature. Recently, other scholars have focused on representing nonhuman animals in particular. For example, Donaldson and Kymlicka (2011) argue that nonhuman animals should have political rights, including the right to political representation. They distinguish their call for representing nonhuman animals from Dobson's (1996) and other scholars' calls for representing ecosystems: "[P]reserving the sustainability of ecosystems, primarily the wild…has often gone hand in hand with endorsing the violation of the rights of individual animals (e.g., through support for sustainable hunting, or therapeutic culling of over-populated or invasive species)" (Donaldson & Kymlicka, 2011, p. 154). Cochrane (2018) likewise contends that political institutions "should include *dedicated representatives of non-human animals* whose job should be to translate the interests of animals into deliberations over what is in the public good for their communities" (p. 4).

Efforts to represent nonhuman animals in deliberations through proxy representation or interest incorporation have faced many of the same challenges efforts to represent ecosystems have. That said, Dryzek's (2002) discussion of green democracy suggests that representing nonhuman animals can be legitimate as well. Nonhuman animals can communicate nonverbally, and humans can interpret this communication to learn nonhuman animals' interests and as a source of authorization and accountability. A different challenge to representing nonhuman animals in deliberations comes from the animal rights movement. According to Humphrey and Stears (2006), deliberative democracy's emphasis on making decisions through deliberation restricts other necessary forms of political action like protest. In other words, representing nonhuman animals is possible, but it may do them more harm than good. Garner (2016a) responds to this challenge by clarifying that deliberative democracy and protest can be compatible so long as protestors are

committed to deliberative ideals like inclusion but political institutions fall short of those ideals, as they currently do for nonhuman animals. He also offers empirical evidence that representing nonhuman animals in deliberations may benefit them by transforming humans' attitudes (Garner, 2016a).

**Including Nonhuman Animals Through Participation**

Compared to the categories of including ecosystems and nonhuman animals through representation, little theoretical literature falls into the category of including nonhuman animals in deliberative democracy through participation. Donaldson and Kymlicka (2011) draw upon the work of disability advocates to argue that at least domesticated animals can participate in democratic processes so long as one accepts that participation includes embodied communication like physical presence as well as verbal communication. To demonstrate this point, they reframe challenges to leash laws from a human effort on behalf of their dogs to a collaboration between humans and dogs (Donaldson & Kymlicka, 2011). Hribel (2010) provides additional evidence of nonhuman animal participation in his history of animal resistance. Stories of orangutans escaping from enclosures may not exemplify participation, but one can read them as nonhuman animals' response to being excluded from democratic processes. In one of the most comprehensive accounts of nonhuman animals' participation in deliberations, Driessen (2014) contends that nonhuman animals like the escaping orangutans are already participating in deliberations with humans, and that humans need to be more receptive to their participation: "When humans interpret non-human signals as mere 'information' to be used solely for their own purposes of domination and control, it is humans who fail to be deliberative, not animals" (p. 147). He goes on to describe several examples of animal deliberation on farms, including deliberation among cows and farmers on dairy farms that led to the development of mobile milking robots (Driessen, 2014). In another comprehensive account, Meijer (2017) largely accepts Driessen's (2014) theory of animal deliberation, but critiques his lack of

engagement with the power farmers have over cows. She then offers her own account of interspecies political communication, which involves changing the roles of time, space, physicality, and relations in small-scale deliberations and then extending the changes to larger scales (Meijer, 2017).

Other scholars have challenged efforts to include nonhuman animals in deliberations through participation. According to Goodin (1996), many critics of nonhuman animal participation in any democratic process, including deliberation, challenge it as "almost like a *reductio ad absurdum.* 'Ballots for whales? Absurd,' they will scoff. 'Whales do not talk: not to us, anyway. They do not mark ballot papers'" (pp. 840–841). In response, he argues that while nonhuman animals may not talk or mark ballot papers, they certainly do communicate with humans (Goodin, 1996). Therefore, the idea of nonhuman animal participation may be radical, but it is not absurd. Planinc (2014) agrees that nonhuman animal participation is not absurd, but she challenges Donaldson and Kymlicka's (2011) acceptance of nonhuman animals' embodied communication as participation. Specifically, she contends that nonhuman animals cannot reflect on their freedoms, and individuals must be able to reflect on their freedoms to participate in democratic processes like deliberation (Planinc, 2014). Donaldson and Kymlicka (2014) respond that participation is not grounded in reflective practice but rather in unreflective behaviors of which many nonhuman animals are capable.

**Including Ecosystems Through Participation**

To my knowledge, very little theoretical literature falls into the category of including ecosystems in deliberations through participation. One scholar who does begin to theorize including ecosystems is Carolan (2006), who studied the effects of visiting a seed bank on people's understandings of agricultural issues. He found that if people learned about the issues not only through abstract language but also through the seed bank, their understandings of them were much deeper:

> Such was the effect for many who visited SSE [the seed bank]; it brought into focus, literally, entities that were otherwise distant and abstract. Thus, rather than a one-dimensional sketch within a textbook or from the internet, "genes" at SSE became multidimensional, tactile and real. Rather than an abstract concept talked about in the news or within the classroom, "biodiversity" (at least within the context of agriculture) become for visitors something that could be touched, smelled, and seen, as they walked around and through the gardens, the orchard, and the visitor's centre. (Carolan, 2006, p. 351)

To be clear, Carolan (2006) does not characterize the seed bank as a participant in a deliberation, and even if he did, a seed bank is not an ecosystem in the same sense that a forest is. That said, his finding suggests that the seed bank communicated with its visitors, and that it and ecosystems could participate in deliberations.

Efforts to include ecosystems in deliberations through participation would likely face the same challenges as efforts to include nonhuman animals through participation. Dobson (2010) responds to the challenge that ecosystem participation would be absurd by shifting the emphasis from speaking to listening. That is, rather than pointing out that ecosystems cannot speak in the same way humans do, critics should recognize that ecosystems communicate in other forms and humans need to listen to them more carefully (Dobson, 2010). However, such a shift from speaking to listening would leave ecosystem participation open to Planinc's (2014) challenge that it is unreflective and therefore undemocratic. While Donaldson and Kymlicka (2014) contend that reflection is not necessary for participation in democratic processes, they seem to accept that morality is necessary. Ecosystems can certainly communicate, but they are incapable of morality. Thus, one is to theorize including ecosystems in deliberations through participation, they must address this issue.

**Including Nonhuman Animals and Ecosystems Through Representation and Participation**

As my literature review indicates, scholars have begun theorizing including nonhuman stakeholders in deliberative democracy; that said, other scholars can develop this promising work in at least two ways. First, much of the work focuses upon including *either* nonhuman animals *or* ecosystems through *either* representation *or* participation, rather than including *both* nonhuman animals *and* ecosystems through *both* representation *and* participation. However, nonhuman animals must be integrated with ecosystems and representation must be integrated with participation if theories of including nonhuman stakeholders in deliberative democracy are to become common practice. To an extent, some scholars have done this integrating work. For example, Dobson (1996) and Eckersley (1999) consider nonhuman animals and ecosystems, and Driessen (2014) and Meijer (2017) connect representation to participation. One can further develop this work by integrating nonhuman animals with ecosystems and representation with participation simultaneously.

Second, much of the work focuses upon arguing *that* nonhuman stakeholders *can* be included in deliberative democracy instead of upon *how* they *should* be included in it. If including nonhuman stakeholders is to move from theory into practice, theories must address how they should be included in greater detail. To be sure, some scholars have explained how to include nonhuman stakeholders in considerable detail. For instance, both Driessen (2014) and Meijer (2017) offer nuanced theories of nonhuman animal deliberation and apply them to numerous cases of interaction among nonhuman animals and humans. Still, one can further develop this work by detailing how both nonhuman animals and ecosystems should be included. In this chapter, I will develop these scholars' work by theorizing multispecies communicative democracy, a theory of deliberative democracy that includes nonhuman animals and ecosystems.

## Methods

Having reviewed the literature on including nonhuman stakeholders in deliberative democracy, I will now outline my methods for theorizing multispecies communicative democracy. Broadly, I use dialectics, a method in which a theorist develops an idea, or thesis, by bringing it into conversation with another idea, its antithesis, to create a third idea, their synthesis, that is itself subject to the method (Singer, 1983). Through this method, I theorize multispecies communicative democracy. More specifically, I use conceptual analysis, a method in which a theorist develops one or more concepts by analyzing their necessary and sufficient conditions (King, 2016), to connect concepts of deliberative democracy, particularly Iris Marion Young's (2000) communicative democracy, with concepts of more-than-human communication, particularly Eduardo Kohn's (2013) sylvan thinking. Through this method, I develop a theory of multispecies communicative democracy. I then use thought experiment, a method in which a theorist reasons about an imaginative scenario to illustrate, support, or refute a theory (Gendler, 2010), to apply the theory of multispecies communicative democracy to Ann Arbor's deer management situation. Through this method, I create a set of practices for multispecies democratic communication.

## Developing a Theory of Multispecies Communicative Democracy

To develop a theory of multispecies communicative democracy, I will first analyze the concept of deliberative democracy, focusing on Iris Marion Young's (2000) theory of communicative democracy. Then, I will analyze the concept of more-than-human communication, focusing on Kohn's (2013) theory of sylvan thinking. Finally, I will combine communicative democracy with sylvan thinking to develop multispecies communicative democracy.

### Deliberative Democracy

Deliberative democracy as a theory of decision making in which all stakeholders give reasons for their positions on an issue and work to gain knowledge and make a decision about it. Bächtiger

et al. (2018) similarly define it as "any practice of democracy that gives deliberation a central place" (p. 2), where deliberation is "mutual communication that involves weighing and reflecting on preferences, values, and interests regarding matters of common concern" (p. 2). They add that deliberative democracy is

> grounded in an ideal in which people come together, on the basis of equal status and mutual respect, to discuss the political issues they face and, on the basis of those discussions, decide on the policies that will then affect their lives. (Bächtiger et al., 2018, p. 2)

According to both definitions, the deliberative ideal is "a standard toward which to aim" (Bächtiger et al., 2018, p. 2), and deliberations' legitimacy depends upon the extent to which they achieve the ideal. However, all deliberations will fall short of the ideal, as it "cannot be achieved fully in practice" (Bächtiger et al., 2018, p. 2). In that sense, deliberative democracy is an aspirational theory.

My and Bächtiger et al.'s (2018) definitions are sufficiently broad that most scholars of deliberative democracy would accept them; however, they would disagree about more specific aspects of the definitions, such as which parts of them to prioritize or how they interpret those parts. Regarding priorities, some scholars would prioritize "give reasons," while others would prioritize "all stakeholders" (Bächtiger et al., 2018). According to Chappell (2012), Habermas and his followers prioritize giving reasons and "focus on the power of the best argument and put less emphasis on equality and inclusion" (p. 69); in contrast, "difference democrats" prioritize inclusion and "are concerned with the political implications of structural inequalities and power differences in society" (p. 69). If a stakeholder were unable to give reasons for their position, a Habermasian may not include them in a deliberation, whereas a difference democrat likely would. Young (2000) acknowledges the importance of reason, but prioritizes inclusion; thus, she is a difference democrat and would likely include the above stakeholder. Some scholars would also prioritize "make a decision," while others would prioritize "gain knowledge." According to Bächtiger et al. (2018),

"first generation" (p. 4) scholars of deliberative democracy prioritize making a decision and emphasize consensus; on the other hand, "second generation" (p. 4) scholars also prioritize gaining knowledge and emphasize clarifying conflicts. If a deliberation did not lead to a decision but produced knowledge, a first generation scholar would likely be dissatisfied, whereas a second generation scholar may not be (Bächtiger et al., 2018). Young (2000) falls into the second generation of deliberative democratic scholars in that she recognizes the importance of gaining knowledge as well as making decisions and would be satisfied if a deliberation produced knowledge.

Regarding interpretations, some scholars would interpret "mutual communication" as directly participating in deliberations, while others would interpret it as representing others (Bächtiger et al., 2018). For example, Fishkin (2011) interprets mutual communication as participating in deliberations through face-to-face communication: "[c]ombining political equality with deliberation requires that the deliberation take place on a human scale, on the scale of face-to-face democracy" (p. 80); to him, therefore, it is limited in scale. On the other hand, Dryzek (2002) interprets mutual communication as representing others through the exchange of discourses in the public sphere; to him, it is less limited in scale. Young (2000) combines participation and representation in a "decentered model of deliberative democracy" (p. 46); to her, deliberation can and does occur at small scales, but it must also occur at larger scales. Some scholars would also interpret the deliberative ideal as an outcome, whereas others interpret it as a procedure (Bächtiger et al., 2018). According to Chappell (2012), outcome-based justifications claim that deliberation is legitimate because it "will arrive at good outcomes, indeed better outcomes than other procedures would produce" (p 56); on the other hand, procedural justifications state that it is legitimate because deliberative procedures develop and pass on "shared norms…which do not merely appear to serve the narrow interests of the individuals who adhere to them" (p. 54). Young (2000) combines outcome-based and procedural justifications for deliberative democracy, claiming that the outcomes

of deliberations to be more democratic than the outcomes of other decision-making processes, and that deliberative processes themselves are more democratic than those other processes.

**Young's Communicative Democracy.** To theorize including nonhuman stakeholders in democratic deliberation, I focus upon Iris Marion Young's (2000) theory of communicative democracy for four reasons. First, its prioritization of inclusion makes it more open to including nonhuman animals and ecosystems than other theories of deliberative democracy. While Young (2000) herself does not discuss including nonhuman stakeholders, her contention that a decision is only legitimate if all those who are affected by it are included in the decision-making process suggests that she may be willing to include them. Second, its prioritization of gaining knowledge as well as making decisions prepares it for the potential complexity of issues involving many stakeholders. Even if stakeholders cannot make a decision about an issue because of its complexity, deliberation can at least help clarify it. Third, communicative democracy's combination of face-to-face and virtual communication makes it open to integrating participation and representation. Indeed, Young (2000) discusses both participation and representation at length. Fourth, its combination of outcome-based and procedural justifications give it multiple sources of legitimacy. Both its outcomes and procedures are democratic.

Young (2000) details her theory of communicative democracy in her book *Inclusion and Democracy*. First, she explains that communicative democracy is a specific approach to deliberative democracy (Young, 2000). Young (2000) then defines deliberative democracy as a theory of democracy characterized by deliberation, which is

> a process of communication among citizens and public officials, where they make proposals and criticize one another, and aim to persuade one another of the best solution to collective problems. Participants in the processes of communication must be reasonable in the sense

> of willing to be accountable to others. The process must be open in the sense of public and accessible for it to count as normatively legitimate. (p. 52)

Through deliberation, Young (2000) argues that deliberative democracy aims to meet four normative ideals: inclusion, equality, reasonableness, and publicity. The norm of inclusion states that "all those whose basic interest are affected by a decision ought to be included in the deliberatively democracy [*sic*] process" (Young, 2000, p. 27); the norm of equality states that all those affected should be included equally; the norm of reasonableness states that participants must be willing "to listen to others who want to explain to them why their ideas are incorrect or inappropriate" (p. 24); and the norm of publicity states that participants must hold themselves accountable to one another. Like Bächtiger et al. (2018), Young (2000) notes that deliberative democracy is aspirational: it will never meet these ideals in practice, but should still aim for them (Young, 2000).

As her definition shows, Young (2000) sees participation in deliberations as necessary to deliberative democracy; however, she critiques many theories of deliberative democracy because their conceptions of participation fail to meet the norm of inclusion. One way they fail to meet this norm is through external exclusion, which occurs when stakeholders are prevented from participating in decision-making processes (Young, 2000). For example, some marginalized humans may not be invited to participate in deliberations. Another way conceptions of participation fail to meet the norm of inclusion is through internal exclusion, which occurs when "the terms of discourse make assumptions some do not share, the interaction privileges specific styles of expression, the participation of some people is dismissed as out of order" (Young, 2000, p. 53). In particular, many theories tend to privilege the exchange of rational arguments over emotive and embodied forms of communication that may be more accessible to marginalized humans (Young, 2000). Notably, Young (2000) argues that a theory of deliberative democracy must be inclusive of such forms to be legitimate.

Young (2000) addresses the internal exclusion present in many theories of deliberative democracy through her theory of communicative democracy, which allows for participation through both the exchange of rational arguments and emotive and embodied forms of communication that may be more accessible to marginalized humans. She also describes three such forms of communication: the exchange of greetings, rhetoric, and narratives (Young, 2000). Young (2000) defines greeting as "those moments in everyday communication where people acknowledge one another in their particularity" (p. 58). Her examples of greetings include linguistic greetings like "Hello" and "Goodbye" as well as non-linguistic greetings like handshakes and offerings of food (Young, 2000). Young (2000) argues that greeting is a moment in which "a speaker announces her presence as ready to listen and take responsibility for her relationship to her interlocutors, at the same time that it announces her distance from the others, their irreducible particularly" (p. 59). Like rational argument, greeting can thus help deliberation address internal exclusion. Young (2000) defines rhetoric as "the various ways something can be said, which colour and condition its substantive content" (p. 65). She lists linguistic rhetoric like figures of speech as well as non-linguistic rhetoric like emotional tone, style, visual media, and action (Young, 2000). Rhetoric may not state content, but it does emphasize the importance of that content (Young, 2000). In that way, it, too, can help deliberation address internal exclusion. Young (2000) defines narrative as stories about people's experiences. She does not specify that narratives must be linguistic (Young, 2000). Young (2000) contends that stories serve many functions, such as enabling oppressed people to express the injustices they have suffered, helping all people understand one another's experiences, and contributing to social knowledge and new thoughts. As with greeting and rhetoric, narrative can also help deliberation address internal exclusion. To be clear, Young (2000) does not replace rational argument with greeting, rhetoric, and narrative, nor does she limit deliberation to those four forms

of communication; rather, she supplements rational argument with greeting, rhetoric, and narrative to help deliberation address internal exclusion.

Along with participation, Young (2000) sees representation as necessary in large societies, and she critiques some theories of deliberative democracy because their conceptions of representation fail to meet the norm of inclusion. One way they fail to meet this norm is by conceiving of representation as one member of a group standing for the other members of the group (Young, 2000). For example, one woman can stand for other woman because all women share some characteristics. Young (2000) argues that this conception incorrectly assumes that members of a group share an essential set of interests, opinions, and experiences to which each member has access. Each person has a unique set of characteristics that cannot be reduced to their group identities, and assuming that they can excludes some people (Young, 2000). Another way conceptions of representation fail to meet the norm of inclusion is by conceiving of it as a mirror of a polity such that the proportion of a group in a representative assembly equals its proportion in society (Young, 2000). For instance, African Americans should occupy the same proportion of seats in an assembly as they do in society. Young (2000) contends that this conception overlooks the influence of power on decision making. Unless historically underrepresented people are overrepresented in social institutions, the institutions will continue to exclude them (Young, 2000).

Young (2000) addresses the exclusion in many theories of deliberative democracy by conceiving of representation as "a *differentiated relationship* among political actors engaged in a process extending over space and time" (Young, 2000, p. 123). She then argues that representation functions better to the extent that constituent-representative relationships meet three standards: first, that representatives are authorized by and accountable to their constituents; second, that representatives represent their constituents' interests, opinions, and perspectives; and third, that marginalized groups of constituents receive special representation (Young, 2000). Regarding the first standard,

authorization calls for representatives to seek and receive permission from their constituents to represent them, and accountability calls for representatives to in some way report back to their constituents after making decisions (Young, 2000). Authorization and accountability require communication among representatives and their constituents, but Young (2000) does not specify that this communication must be linguistic. Regarding the second standard, interests means "what affects or is important to the life prospects of individuals, or the goals of organizations" (Young, 2000, p. 134); opinions means "the principles, values, and priorities held by a person as these bear on and condition his or her judgment about what policies should be pursued and ends sought" (p. 135); and perspectives means individuals' social positions. Representing constituents' interests, opinions, and perspectives requires communication among representatives and their constituents, but as with authorization and accountability, this communication could be non-linguistic. Regarding the third standard, special representation refers to the intentional representation of groups of constituents whose perspectives have been historically underrepresented and would otherwise continue to be underrepresented (Young, 2000). Young (2000) specifically mentions marginalized human groups like women, but nonhuman groups are also marginalized. Notably, constituent-representative relationships may not meet all three of these standards, but representatives should nonetheless aim for them (Young, 2000).

Having described communicative democracy's more inclusive forms of participation and standards of representation, Young (2000) notes that deliberations in communicative democracy will produce knowledge, but may not lead to decisions. Indeed, she argues that deliberations in which stakeholders hold significantly different positions often should not result in consensus, as a consensus may indicate that not all positions received full consideration (Young, 2000). That said, Young (2000) recognizes that deliberations that do not lead to consensus are still useful, as they can help clarify conflicts and may even result in temporary decisions:

> A discussion is liable to break down if participants with deep conflicts of interest and value pretend they have common interests, because they are unable to air their differences. If, on the other hand, they mutually acknowledge their differences, and thereby mutually acknowledge that co-operation between them requires aiming to make each understand the other across those differences, then they are more likely to maintain co-operation and occasionally arrive at rough-and-ready provisional agreement. (p. 44)

Because these communicative democratic deliberations do not necessarily result in decisions, she does not justify communicative democracy solely on the basis of its outcomes, but also on its procedures (Young, 2000). Deliberations tend to have more democratic and effective outcomes than other democratic processes, but their legitimacy comes from the extent to which the deliberative processes meet the norms of inclusion, equality, reasonableness, and publicity, particularly the norm of inclusion (Young, 2000).

**Communicative Democracy and More-Than-Human Communication.** Young (2000) only addresses the internal exclusion of marginalized humans; however, her theory of communicative democracy itself can address the exclusion of nonhuman stakeholders. Indeed, a close reading of her *Inclusion and Democracy* suggests that she may have recognized this possibility. Young's (2000) description of the norm of inclusion offers the clearest example of this recognition:

> As an ideal, inclusion embodies a norm of moral respect. Persons *(and perhaps other creatures)* [emphasis added] are being treated as means if they are expected to abide by rules or adjust their actions according to decisions from where determination of [*sic*] their voice and interests have been excluded. (p. 23)

At the very least, her mentioning other creatures shows her willingness to consider nonhuman animals' voices and interests. Another example lies in Young's (2000) discussion of inclusive democratic communication:

> Inclusive democratic communication assumes that all participants have something to teach the public about the society in which they dwell together and its problems. It assumes as well that all participants are ignorant of some aspects of the social *or natural world* [emphasis added], and that everyone comes to a political conflict with some biases, prejudices, blind spots, or stereotypes. (p. 77)

If inclusive democratic communication assumes that all participants have something to teach the public and all participants are ignorant of some aspects of the natural world, including nonhuman animals and ecosystems is appropriate. Yet even if Young (2000) did not recognize the possibility of including nonhuman animals and ecosystems, the norm of inclusion requires it:

> On this model a democratic decision is normatively legitimate only if all those affected by it are included in the process of discussion and decision-making. This simple formulation opens many questions about the way in which they are affected, and how strongly…To limit this question somewhat, we can say that "affected" here means at least that decisions and policies significantly condition a person's options for action (p. 23)

At no point does the norm state that all those affected must be humans, and her use of the term person is arbitrary; undoubtedly, many decisions condition nonhuman stakeholders' options for action.

If communicative democracy is to address the exclusion of nonhuman stakeholders, though, one must develop it in several ways. First, one must determine the extent to which nonhuman stakeholders can participate in deliberations through rational argument or other forms of communication. Second, one must determine the extent to which representing nonhuman stakeholders in deliberations can meet the three standards for constituent-representative relationships. Third, and most importantly, one must demonstrate that including nonhuman stakeholders in deliberations would help deliberative democracy meet its norms of inclusion,

equality, reasonableness, and publicity. As all of these developments depend upon communication, they require a theory of communication that includes nonhuman animals and ecosystems.

**More-Than-Human Communication**

Earlier, I described more-than-human communication as communication that is not limited to humans. Many theories of more-than-human communication are anthropocentric in that they first privilege human symbolic communication and then seek evidence that some nonhuman animals are also capable of symbolic communication. One example of such theories lies in the story of Nim Chimpsky, a chimpanzee who was raised by a human family and taught American Sign Language as part of a study called Project Nim to disprove the claim that language is exclusive to humans (Hess, 2009). Researchers were ultimately unable to disprove that claim, finding no evidence that Nim was capable of using grammar (Terrace, Petitto, Sanders, & Bever, 1979). However, as Hess (2009) points out, the fact that he did not use grammar does not mean that he was not communicating with the researchers in meaningful ways. This fact highlights the shortcomings of anthropocentric theories of more-than-human communication: by privileging human symbolic communication, they overlook other meaningful forms of communication of which nonhuman animals and even ecosystems are capable.

Recently, several scholars have offered non-anthropocentric theories of communication that do not privilege human symbolic communication but rather decenter it as one form in a much broader spectrum of communication. Despret (2012/2016) exemplifies such decentering by both critiquing researchers who study nonhuman animals' communicative and other capabilities through an anthropocentric lens and sharing the work of researchers who study nonhuman animals through a broader, non-anthropocentric lens. One such researcher is Barbara Smuts, a primatologist studying baboons who "adopted a behavioral style similar to that of the baboons, adopted the same body language as them and, in short, learned what was and was not appropriate to do with the baboons"

(Despret, 2012/2016, p. 16) so effectively that "she was no longer treated as an object to be avoided but as a trusted subject with whom they could communicate, who would distance herself when signaled to do so, and with whom things could be clearly established" (p. 17). By decentering human communication and opening herself to the baboons' communication, Smuts was able to gain meaningful insights into their experience (Despret, 2012/2016). To the extent that other scholars are willing to open themselves to nonhuman animals' and ecosystems' communication, they can gain similarly meaningful insights.

**Kohn's Sylvan Thinking.** To develop Young's (2000) communicative democracy, I focus upon the work of Eduardo Kohn (2013). Like Despret (2012/2016), Kohn (2013) decenters human symbolic communication and studies nonhuman animals' communicative capabilities through a non-anthropocentric lens. Indeed, his theory of sylvan thinking is open to communicative capabilities of not only nonhuman animals but also ecosystems. For that reason, it is a promising theory of communication with which to address the exclusion of nonhuman stakeholders from deliberative democracy.

Kohn (2013) details his theory of sylvan thinking in his book *How Forests Think: Toward an Anthropology beyond the Human,* an account of his ethnographic research with the Runa people of Ávila, Ecuador. Through his research, he found that the Runa have a qualitatively different relationship with nonhumans than Western people do (Kohn, 2013). More specifically, they communicate not only with other humans, but also with

> other kinds of beings: the squirrel cuckoo who flew over the house whose call so radically changed the course of discussion below; the household dogs with whom people sometimes need to make themselves understood; the woolly monkeys and the powerful spirits that inhabit the forest…With all of these, people in Ávila struggle to find channels of communication. (Kohn, 2013, p. 13)

Kohn (2013) describes the Runa's more-than-human communication as "sylvan thinking" (p. vii) or "thinking with and like forests" (p. 227), and he argues that Western people must cultivate a similar way of communicating if they are to address contemporary environmental issues.

To explain the Runa's sylvan thinking and how Western people can cultivate it, Kohn (2013) turns to Charles Peirce and his theory of semiotics, "the study of how signs represent things in the world" (Kohn, 2013, p. 7). Peirce (1931b) defines sign as "something which stands to somebody for something in some respect or capacity" (p. 228). For example, a drawing of a deer is a sign because it is a thing which stands to people who are familiar with the concept of deer for that concept. According to Peirce (1931b), signs have three elements: the sign or sign-vehicle,[8] the object, and the interpretant. The sign-vehicle is the something which stands for something else; the object is the something else that the sign-vehicle stands for; and the interpretant is the somebody's response to the sign-vehicle (Peirce, 1931b). For instance, the drawing of a deer is the sign-vehicle because it stands for the concept of deer; the concept of deer is the object because the drawing stands for it; and the interpretant is the reader's response to the drawing and concept, such as thinking about the deer who live in a nearby forest. Signs are connected to one another through semiosis, a process through which the interpretant of a sign becomes another sign, the other sign's interpretant becomes a third sign, and so on (Kohn, 2013). For example, a person's response to seeing a drawing of a deer may be to think of a deer they saw recently, and their response to the thought of the deer they saw recently may be to worry about their city's deer management process.

Peirce (1931a) goes on to describe three classes of signs: icons, indices, and symbols. Icons are signs that are similar to the things they represent (Kohn, 2013). For instance, the drawing of a

[8] Peirce (1931b) uses the term "sign" to refer to both "something which stands to somebody for something in some respect or capacity (p. 228) and the first element of that something. To avoid confusion, I will follow Kohn (2013) in using the term "sign" to refer to the something and the term "sign-vehicle" to refer to the first element of that something.

deer is an icon for the concept of deer because it looks like a deer. Indices are signs that are not similar to the things they represent, but are caused by them or point to them (Kohn, 2013). For example, a deer trail is an index for the concept of deer because it does not look like a deer, but it is caused by deer. Symbols are signs that are neither similar to nor caused by the things they represent, but refer to them through an abstract representational system (Kohn, 2013). For instance, the written word "deer" is a symbol for the concept of deer because it does not look like a deer and is not caused by a deer, but it does represent the concept of deer through the English language. Symbols emerge from icons and indices and therefore depend upon them for their meaning; however, symbols' use of an abstract representational system limits their meaningfulness to the beings who understand that system (Peirce, 1931a). For example, the written word "deer" emerges from and depends upon deer, but it is only meaningful to humans who can read English. Icons, indices, and symbols are all real, but in different ways (Kohn, 2013). Icons are concretely real in that they share some of the real qualities of the things they represent; indices are concretely real in that they are really caused by the things they represent; and symbols are abstractly real in that refer to generals, which are real in that they "have an eventual efficacy" (Kohn, 2013, p. 59). In the above examples, a drawing of a deer is real because it shares the real appearance of a deer; a deer trail is real because it is really caused by deer; and the written word "deer" is real because it has the eventual efficacy of making English readers think of a deer or deer.

Having outlined Peirce's (1931a; 1931b) semiotics, Kohn (2013) uses it to explain the Runa's sylvan thinking. He first argues that in sylvan thinking, all living beings use signs and participate in semiosis (Kohn, 2013). As an example, Kohn (2013) recounts an experience he had hunting woolly monkeys with a Runa man and his son: To scare a monkey out of her perch in a palm tree, the man cut down a nearby tree; and as the nearby tree crashed down, the monkey climbed to another perch in her tree. Through the lens of signs and semiosis, the sound of the palm tree crashing down was a

sign-vehicle, the tree crashing down was its object, and the monkey's response was the interpretant (Kohn, 2013). Had the monkey stayed in her original perch, one could assume that she thought of sound as an icon: it sounded like a tree crashing down and therefore stood for a tree crashing down. However, Kohn (2013) contends that the monkey climbed to another perch because she thought of the sound as an index in a longer semiotic chain: it may have sounded like a tree crashing down, but her experience had taught her that trees crashed down because predators climbed them; therefore, the sound stood for a predator because it was caused by a predator. To be sure, the monkey did not and could not use symbols, at least not human symbols; nonetheless, she and other living beings can and do use icons and indices to participate in semiosis (Kohn, 2013).

Kohn (2013) then argues that in sylvan thinking, living systems, too, use signs and participate in semiosis. Returning to the example of hunting wooly monkeys, he states that "the startled monkey's jump, and the entire ecosystem that sustains her, constitutes a web of semiosis of which the distinctive semiosis of her human hunters is just one particular kind of thread" (Kohn, 2013, p. 33). Like food webs, these semiotic webs have emergent properties (Kohn, 2013). Moreover, these emergent properties make semiotic webs abstractly real signs, as are symbols, in that they refer to habits that "originate and manifest in worlds outside the human mind" (Kohn, 2013, p. 59). Kohn (2013) contends that the forests around Ávila are particularly clear examples of such semiotic webs:

> Lifeforms, as they represent and amplify the habits of the world, create new habits, and their interactions with other organisms create even more habits. Life, then, proliferates habits. Tropical forests, with their high biomass, unparalleled species diversity, and intricate coevolutionary interactions, exhibit this tendency toward habit taking to an unusual degree. (p. 62)

In this way, forests and other living systems use abstractly real signs to participate in semiosis distinctly from the beings who inhabit them.

To cultivate sylvan thinking, Kohn (2013) concludes, Western people experience forests as the Runa do. That is, they must learn to recognize and understand the signs and semiotic webs with which living beings and systems think. Put differently, forests already communicate. To cultivate sylvan thinking, Western people must learn to listen to and join in on their conversations.

**Sylvan Thinking and Deliberative Democracy.** As a theory of communication that includes nonhumans, Kohn's (2013) sylvan thinking is a promising complement to Young's (2000) communicative democracy for theorizing how to include nonhuman animals and ecosystems in deliberative democracy. While Kohn (2013) does not explicitly mention deliberative democracy, he does argue that sylvan thinking calls humans to include nonhumans in their ethical practice:

> A more capacious ethical practice, one that mindfully attends to finding ways of living in a world peopled by other selves, should come to be a feature of the possible worlds we imagine and seek to engender with other beings. (Kohn, 2013, p. 134)

In the context of decision making, a communicative democracy that included nonhuman animals and ecosystems could very well be such a way of living. Just as sylvan thinking can benefit communicative democracy, so too can communicative democracy benefit sylvan thinking.

Promising though it may be, using sylvan thinking in communicative democracy does present several challenges. First, sylvan thinking requires people to decenter human symbolic communication and open themselves to other forms of communication (Kohn, 2013); therefore, many Western people will have to overcome their tendency to privilege human symbolic communication. Second, sylvan thinking may explain how people can communicate with nonhumans, but such communication requires people to have a deep understanding of nonhuman animals and ecosystems gained through extend interaction with them (Kohn, 2013). Therefore, many Western people will have to significantly deepen their understandings of and extend their interaction with nonhuman animals and ecosystems. Third, sylvan thinking may open many forms of

communication to nonhumans, but it still limits symbolic communication to humans (Kohn, 2013). While Kohn (2013) does not center or privilege symbolic communication, he does argue that moral thinking is an emergent property of symbolic communication. To the extent that deliberation calls for moral thinking, therefore, sylvan thinking cannot explain how nonhuman animals and ecosystems can fully and directly deliberate. If multispecies communicative democracy is to be effective, it must address these challenges.

**A Theory of Multispecies Communicative Democracy**

Combining and developing upon Young's (2000) communicative democracy and Kohn's (2013) sylvan thinking, multispecies communicative democracy is a theory of deliberative democracy that includes nonhuman stakeholders. It is similar to communicative democracy in two ways. First, multispecies communicative democracy is also a specific approach to deliberative democracy. As an approach to deliberative democracy, it is a theory of democracy characterized by deliberation, through which it aims to meet the norms of inclusion, equality, reasonableness, and publicity. It is an aspirational theory in that it will never meet these ideals in practice but should still aim for them. Second, multispecies communicative democracy also critiques theories of deliberative democracy that fail to meet the norm of inclusion. It addresses the exclusion in these theories by conceiving of participation that allows for rational argument as well as emotive and embodied forms of communication that may be more accessible to marginalized humans. Three emotive and embodied forms of communication are greeting, rhetoric, and narrative. Multispecies communicative democracy also addresses the theories' exclusion by conceiving of representation as a relationship between representatives and their constituents. Its three standards for constituent-representative relationships are that representatives are authorized by and accountable to their constituents; that representatives represent their constituents' interests, opinions, and perspectives; and that marginalized groups of constituents receive special representation. Through this more inclusive

participation and representation, multispecies communicative democracy generates knowledge and can lead to decisions. That said, its legitimacy does not primarily come from how democratic or effective its outcomes are, but from the extent to which its procedures meet the norms of inclusion, equality, reasonableness, and publicity, particularly the norm of inclusion.

Multispecies communicative democracy is also distinct from communicative democracy in two ways. First, it critiques communicative democracy for excluding nonhuman stakeholders through both internal and external exclusion. It addresses this exclusion by emphasizing the iconic and indexical aspects of greeting, rhetoric, and narrative and allowing for other iconic and indexical forms of communication, which are more accessible to nonhuman stakeholders (Kohn, 2013). One way it allows for other iconic and indexical forms of communication is through the presence of nonhuman stakeholders in deliberative settings, which it . Second, multispecies communicative democracy nuances communicative democracy by conceiving of mediated participation as a complement to participation and representation. Mediated participation refers to participation that is mediated by a representative, as in Clifford's (2012) "collaborative speech" (p. 211), in which people with communicative disabilities and their caregivers communicative collaboratively. In mediated participation, nonhuman stakeholders participate in deliberations to the extent they are capable, and humans represent them if and when they become incapable of participating.

**Multispecies Communicative Democracy and Participation.** Multispecies communicative democracy aims to include nonhuman stakeholders in deliberations through participation, including presence. To be sure, nonhuman stakeholders are likely incapable of participating through the exchange of rational arguments. While some nonhuman animals are capable of symbolic communication and even human symbolic communication (de Waal, 2016), even they may be incapable of reflecting on human symbols to the extent that exchanging rational arguments requires.

That said, nonhuman stakeholders are capable of participating through the exchange of greetings, rhetoric, and narratives, as these forms of communication can be iconic and indexical. As stated above, Young (2000) defines greeting as "those moments in everyday communication where people acknowledge one another in their particularity" (p. 57–58). Humans can acknowledge nonhuman animals, and nonhuman animals can recognize this acknowledgement; similarly, nonhuman animals can acknowledge humans, and humans can recognize this acknowledgement. For example, I acknowledge dogs by kneeling down and offering them my hand, and they acknowledge me by smelling and licking my hand. Over a longer timeframe, humans could learn to acknowledge unfamiliar nonhuman animals like wolves by living with them, and they may come to acknowledge me. In his account of living with wolves, wolf researcher Shaun Ellis (2009) describes such acknowledgement:

> The next night one of the wolves, Reuben, which I now know to have been the beta animal, walked boldly up to me and started to sniff me all over and sniff the air. He didn't touch—he was just checking me out; and he did this for a couple of nights. The next night I was sitting up on the bank at the highest point in the enclosure with my legs out in front of me, knees in the air. The same wolf came over to me and did exactly what he had done the previous two nights: sniffed me, sniffed the air, sniffed down my legs, and then suddenly without warning he lunged forward and in a split second his incisors had taken a hard, very painful nip out of the fleshy bit of my knee…But he backed off, and stood looking at me quizzically as if gauging my reaction. Then he turned and disappeared into the darkness and I didn't see him again until the following night, when he came and did exactly the same thing. He repeated the behavior every night for about two weeks, by which time my knees were black-and-blue…I had no idea what he was doing, but I knew that he couldn't have meant me any real harm because he never followed it up with any sign of aggression and he never

> called over another wolf to join him—and with jaws that are capable of exerting fifteen hundred pounds of pressure per square inch, he could have had my kneecap off in seconds. But he chose not to and that's what kept me going back for more. All I had to show for his assaults were thin lines of bruising on my knees and legs, like little wolf love bites. I didn't react on any of those occasions, which I later discovered is what saved me. The first thing a wolf will do, I came to realize, is find out whether a newcomer is trustworthy; the way he does that is by seeing how the stranger reacts to a bite. (pp. 45–46)

Ellis knew to acknowledge the wolf by patiently sitting in his enclosure and not reacting to the bites, and the wolf's bites seem to have been his own way of acknowledging Ellis.

Humans and ecosystems can also greet one another. For instance, I acknowledge my local forest by listening to the birds and other nonhuman animals who inhabit it, and the birds and other nonhuman animals acknowledge me by starting a vocalizations when they sense me. At a broader scale, humans could also acknowledge forests by regularly visiting them, and them forests may even acknowledge the humans. Ecological philosopher David Abram (2010) describes such acknowledgement in the book *Becoming Animal: An Earthly Cosmology*:

> Wander over to that oak, or to a maple, or a sycamore; reach out your hand to feel the surface of a single, many-pointed leaf between your thumb and fingers. Note the coolness of that leaf against your skin, the veined texture your fingertips discover as they roam across it. But notice, too, another slightly different sensation: that you are also being touched *by* the tree. That the leaf itself is gently exploring your fingers, its pores sampling the chemistry of your skin, feeling the smooth and bulging texture of your thumb even as the thumb moves upon it. As soon as we acknowledge that our hands are included within the tactile world, we are forced to notice this reciprocity: whenever we touch any entity, we are also ourselves being touched *by* that entity. When we stumble outside in the morning, rubbing our eyes free

> of sleep and gazing toward the wooded hillside across the valley, our eyes cannot help but feel their own visibility and vulnerability; hence our animal body feels itself exposed to that hillside, feels itself *seen* by those forested slopes. Such reciprocity is the very structure of perception. We experience the sensuous world only by rendering ourselves vulnerable to that world. Sensory perception is this ongoing interweavement: the terrain enters into us only to the extent that we allow ourselves to be taken up *within* that terrain. (p. 58)

Abram acknowledges the numerous beings and processes that comprise the wooded hillside by recognizing his inclusion in the tactile world, and the hillside seems to acknowledge him by "seeing" and otherwise sensing him.

Young (2000) defines rhetoric as "the various ways something can be said, which colour and condition its substantive content" (p. 65). Humans can communicate the same content to nonhuman animals in different ways through icons and indies, and nonhuman animals can recognize these different ways; similarly, nonhuman animals can communicate the same content to humans in different ways through icons and indices, and humans can recognize these different ways. For example, when I call my dog's name, he can recognize the difference between a higher-pitched, friendly call and a lower-pitched, disciplinary call; likewise, when my dog bites me, I can recognize the difference between his soft, playful bites and his hard, warning bites. Over a longer timeframe, unfamiliar nonhuman animals like coyotes may learn to recognize the different ways humans communicate, and humans could certainly learn some of the different ways they communicate. In two passages about encounters with bears, bear researcher Timothy Treadwell (1997) exemplifies such recognition. First, he encounters a large male bear:

> Suddenly, I heard the telltale sound of crashing bushes and thudding steps, then loud huffing puffs of breath. A bear was approaching and I needed to do something fast. Staying on the trail was out of the question, and turning to run was foolish. I wriggled and shimmied into

> the wall of alders. Then I sat down, low and silent, close to the tunnel. A large male rumbled by, stopping to sniff my footprints. He wasn't the mammoth grizzly who'd made the paw prints outside the tunnel, but he was big, at least 800 pounds. As he turned and looked at me, I silently cursed myself for entering the tunnels. Then, inexplicably, he turned and vanished through the trees. (Treadwell, 1997, p. 19)

The bear could have interpreted Treadwell's presence as a threat, but he instead seems to have recognized it as nonthreatening; moreover, Treadwell may have chosen not to speak because he recognized the bear's stare as a warning. Treadwell (1997) then encounters a young, female bear:

> She froze, ears laid back, clearly agitated. Undoubtedly, traveling the tunnels can be unsettling for bears, too, especially young ones like Kate. "Hiya, Kate," I called out gently. "It sure is scary in here, isn't it, girl?" Kate relaxed at the sound of my voice. As she stretched toward me her ears perked up, and all signs of stress melted away. "I wish you could tell me how much farther it is to the salmon creek," I said to the young bear. Kate looked at me, then disappeared through the tunnel. (pp. 18–19)

Treadwell likely spoke because he recognized fear in the bear's stare, and the bear seems to have recognized friendliness in his words rather than interpreting them as a threat.

Ecosystems are likely incapable of recognizing the rhetoric humans use, but humans can recognize some of the rhetoric ecosystems use. In the sudden appearance of an algal bloom in a local pond, for instance, I can recognize the message that people are overfertilizing their lawns in a way that catches my attention more than gradual change would. At a broader scale, humans could also learn to recognize some of the other ways ecosystems communicate content. Biologist Rachel Carson (2002) describes such recognition in the book *Silent Spring:*

> There was a strange stillness. The birds, for example—where had they gone? Many people spoke of them, puzzled and disturbed. The feeding stations in the backyards were deserted.

> The few birds seen anywhere were moribund; they trembled violently and could not fly. It was a spring without voices. On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and wood and marsh. (p. 2)

In the birds' sudden silence, Carson recognizes not only a message that humans have adversely affected the birds and their habitats, but also a warning that humans must change their behavior quickly to avoid catastrophe.

Young (2000) defines narrative as stories about people's experiences. Humans can tell nonhuman animals stories about themselves through icons and indices, but nonhuman animals are likely incapable of understanding these stories; however, nonhuman animals can also tell humans stories about themselves through icons and indices, and humans can understand these stories. For example, my dog's symptoms of separation anxiety tell me the story that he was abandoned by his previous human, which reminds me to spend as much time with him as I can. Over a longer timeframe, humans could learn to understand some unfamiliar nonhuman animals' stories, such as the story of a mountain goat that nature writer Craig Childs (2007) recounts:

> [T]he smell of a mountain goat is smooth and at the same time rough, combining rank and attractive scents at once, something akin to warm yeast. It is a steamy, soft smell impregnated with territories and maternal instincts. If I learn this well enough, drive my nose into this wool over and over, I may be able to tell one animal from the next. Even as it smells similar to a buffalo, like a bighorn sheep, like any wild, hairy ungulate, the messages inside tell of entirely deeper stories. There were enough flavors here to indicate estrus and age and imminent weather. (pp. 166–167)

The goat's smell tells a story of her home, family, age, and wellbeing, and Childs is able to understand it.

Ecosystems are likely incapable of recognizing the narratives humans tell, but humans can recognize some of the narratives ecosystems tell. For instance, a local prairie undergoing a restoration tells me the story of how it was colonized by an introduced plant species that herbivores could not eat, which reminds me to protect native plants species. At a broader scale, humans could learn to understand some of the other stories ecosystems tell, such as the story of how humans have begun to have unprecedented, adverse impacts on the planetary ecosystem that nature writer Elizabeth Kolbert (2014) tells

> No creature has ever altered life on the planet in this way before, and yet other, comparable events have occurred. Very, very occasionally in the distant past, the planet has undergone change so wrenching that the diversity of life has plummeted. Five of these ancient events were catastrophic enough that they're put in their own category: the so-called Big Five. In what seems like a fantastic coincidence, but is probably no coincidence at all, the history of these events is recovered just as people come to realize that they are causing another one. When it is still too early to say whether it will reach the proportions of the Big Five, it becomes known as the Sixth Extinction. (pp. 2–3)

In addition to participating in deliberations through greeting, rhetoric, and narrative, nonhuman stakeholders are capable of participating through another, related form of iconic and indexical communication: presence. I define presence as physically being in a place. By physically being in a deliberative setting, nonhuman stakeholders require other stakeholders to acknowledge them, their interests, and the potential effects of decisions on their interests. In this sense, presence is similar to greeting. What distinguishes it from greeting is that the term greeting suggests a discrete moment in which a stakeholder calls upon other stakeholders for acknowledgement, whereas presence means that a stakeholder requires acknowledgement from other stakeholders for the course of a deliberation. As with greeting, nonhuman animals and ecosystems are capable of participating in

deliberations through presence; however, including them through presence—and, to an extent, through greeting, rhetoric, and narrative—requires significant changes in deliberative settings, as few nonhuman animals and no ecosystems could access human settings like conference rooms. If possible, multispecies communicative democracy changes traditionally human deliberative settings by making them more accessible to nonhuman stakeholders or relocating deliberations from exclusively human settings like conference rooms to more inclusive settings like nature centers or, ideally, the specific site of the issue under deliberation. For example, if the issue being deliberated were how to address a conflict between wolves and ranchers, multispecies communicative democracy would locate the deliberation at one or more of the ranches from which wolves had attacked cows, thereby inviting the wolves, cows, and ecosystem they inhabit to participate. If relocating a deliberation were not possible, multispecies communicative democracy would still aim to change deliberative settings by filling them with photographs, videos, or other representations of the nonhuman animals and ecosystems affected by the issue being deliberated. For instance, the setting in which the above wolf-rancher conflict were being addressed would have photographs or videos of wolves, cows, and rangeland ecosystems.

As this discussion shows, some nonhuman animals and ecosystems can participate in deliberations more than others, but all of them are capable of participating to an extent. In that sense, multispecies communicative democracy can include nonhuman stakeholders through participation. However, the incapability of some nonhuman stakeholders to fully participate in deliberations leaves multispecies communicative democracy open to the challenge that in moving closer to the norm of inclusion, it moves further away from the norms of equality, reasonableness, and publicity. Even if nonhuman stakeholders are capable of participating in deliberations, they may not be capable of considering other stakeholders' positions, reflecting on their own positions, or holding themselves accountable. Moreover, the changes to deliberations that including nonhuman

stakeholders through participation would require also open it to the challenge that moving closer to the norm of inclusion is impractical. Regardless of their capability of participating in deliberations, including nonhuman stakeholders would require significant changes in deliberative settings and timeframes and may make decision making very difficult. To address these challenges, multispecies communicative democracy also includes nonhuman stakeholders through representation.

**Multispecies Communicative Democracy and Representation.** Multispecies communicative democracy also aims to include nonhuman stakeholders in deliberations through representation, including mediated participation. Relationships between nonhuman stakeholder constituents and human representatives can meet the standards of authorization and accountability; representing interests, opinions, and perspectives; and special representation. According to Young (2000), authorization calls for representatives to seek and receive permission from their constituents to represent them, and accountability calls for representatives to in some way report back to their constituents after making decisions. By learning about their nonhuman stakeholder constituents and communicating iconically and indexically with them, human representatives like Ellis, Treadwell, Childs, Abram, Carson, and Kolbert could seek and receive permission to represent them. A more specific standard for authorization in such a relationship could be that human representatives have not only a strong scientific understanding of their nonhuman animal constituents, but also extended experience interacting with or at least observing them. For example, Ellis (2009) could be a representative for the wolves he lives with, and possibly other wolves, because he has not only an understanding of their biology, behavior, and ecology, but also unparalleled experience living with them. The same human representatives could also report back to their constituents after representing them and iconically and indexically communicate any decisions they made, but their constituents may not be able to understand them. For that reason, a more specific standard for

accountability could be that representatives hold themselves accountable. Indeed, Treadwell (1997) did hold himself accountable to the bears with whom he lived:

> Cupcake made the first move and rushed me vigorously, powerful paws tearing up the grass. I backed up against the tent. As he closed the final five feet, I blasted him with a solid burst of Counter Assault pepper spray. A toxic orange cloud collected on his face, blinding him momentarily. Cupcake spun and withdrew, galloping to the closest field. He coughed in agony, rolling his head in the grass. I was beside myself, miserable at being responsible for Cupcake's suffering. I called to Cupcake, almost crying. "I'm sorry, Cake! You scared me!" (p. 87)

To be sure, Cupcake immediately understood Treadwell's decision to spray him and communicated his dissatisfaction with it, which led Treadwell to hold himself accountable by feeling miserable. However, Treadwell (1997) later held himself accountable on a deeper level:

> I was no longer sorry I'd sprayed Cupcake. Other people occasionally enter the Grizzly Sanctuary, and even though it is illegal, most carry guns. Giving him a dose of fear was exactly what he needed for his own survival. I sincerely hoped to know Cupcake for a very long time. Healthy bears can live to thirty years in the wild, and the thought of knowing the Cake when I was sixty made me smile. Maybe then, he would finally let me be. (p. 88)

Of course, representatives may not always have the perspective or integrity to holds themselves accountable, and another standard could be that other authorized representatives hold them accountable. In the case of Treadwell, other bear researchers have both supported and challenged his decisions as their representative (for example, see Ginsburg, 2018).

Young (2000) defines interests as "what affects or is important to the life prospects of individuals, or the goals of organizations" (p. 134); opinions as "the principles, values, and priorities held by a person as these bear on and condition his or her judgment about what policies should be

pursued and ends sought" (p. 135); and perspectives as individuals' social positions. Nonhuman stakeholders may not have opinions or perspectives, but they certainly have interests that humans could represent by learning about and communicating iconically and indexically with them. A more specific standard for representing interests in such relationships could be that human representatives develop holistic understandings of how their constituents flourish and support decisions that enable them to flourish. For instance, Abram (2010) could be a representative for the wooded hillside he describes because he understands that the many beings and processes that inhabit the hillside are what lead it to flourish. Similarly, Carson (2002) could be a representative for her local ecosystem because she understands the connection between a diversity of birds and its flourishing. That said, humans' understanding of nonhuman stakeholders' flourishing may change as they learn more about and communicate with them. For that reason, another standard could be that representatives critically reflect on and possibly change their understandings of their constituents' flourishing over time. Regarding biodiversity, some scholars have begun to question whether it is an accurate measure of an ecosystem's flourishing (for example, see Morar, Toadvine, & Bohannan, 2015).

According to Young (2000), special representation refers to the intentional representation of groups of constituents whose perspectives have been historically underrepresented and would otherwise continue to be underrepresented. Humans could give nonhuman stakeholders special representation by ensuring that they have representatives, and a more specific standard for special representation could be that a deliberation does not proceed unless a human representative for nonhuman animals and a human representative for ecosystems is present. For example, a deliberation about an issue affecting a population of mountain goats and their ecosystem would not proceed until representatives like Childs (2007) and Kolbert (2014) were present.

In addition to representing nonhuman stakeholders in deliberations by meeting the standards of authorization and accountability, representation of interests, and special representation, humans

can also represent them through mediated participation. I define mediated participation as participation mediated by a representative. In it, nonhuman stakeholders participate in deliberations to the extent they are capable, and humans represent them if and when they become incapable of participating. For instance, if the issue being deliberated were how to address a conflict between wolves and ranchers, cows may be capable of participating in the exchange of greetings, rhetoric, and narratives, but their human representatives would represent them in the exchange of rational arguments. As with participation through presence, representation through mediated participation requires significant changes in deliberative settings. More specifically, it requires that traditionally human deliberative settings be made more accessible to nonhuman stakeholders or that deliberations be relocated to from exclusively human settings like conference rooms to more inclusive settings like nature centers or, ideally, the specific site of the issue under deliberation. If such changes were not possible, representatives would bring photographs, videos, or other representations of their constituents to deliberative settings and refer to them throughout the deliberation.

As this discussion shows, even if nonhuman stakeholders are incapable of participating in deliberations, multispecies communication can include them through mediated participation and other forms of representation. In that way, it addresses the challenge that in moving closer to the norm of inclusion, it moves further away from the norms of equality, reasonableness, and publicity. Even if nonhuman constituents were incapable of considering other stakeholders' positions, reflecting on their own positions, and holding themselves accountable to others, their human representatives can represent them in these ways. Representation also addresses the challenge that including nonhuman stakeholders in deliberations is impractical. If necessary, human representatives could represent their nonhuman constituents in exclusively human deliberative settings, and one representative could represent multiple constituents. As for decision making, multispecies communicative democracy does not need to result in decisions to be useful or legitimate. Rather, it

only needs to generate knowledge and meet the norms of inclusion, equality, reasonableness, and publicity.

## Creating a Set of Practices for Multispecies Communicative Democracy

To create a set of practices for multispecies communicative democracy, I will first describe Ann Arbor's deer management situation. Then, I will detail an imaginative scenario in which the city applies the theory of multispecies communicative democracy to the situation. Finally, I will use the scenario to list a set of practices for multispecies communicative democracy.

### Ann Arbor's Deer Management Situation

In 2014, Ann Arbor responded to its residents' concerns about its growing deer population by beginning to research deer management options (City of Ann Arbor, 2019). Its residents' concerns included deer-vehicle collisions, vegetation damage, and Lyme disease (City of Ann Arbor, 2014). Between 2011 and 2013, the city had 142 deer-vehicle collisions; however, it did not report any vegetation damage by deer in city parks, and its county did not report any cases of Lyme disease (City of Ann Arbor, 2014). The city researched numerous deer management options (City of Ann Arbor, 2014). Some options were lethal, like allowing hunting and hiring sharpshooters to shoot deer, while others were non-lethal, like installing fencing and sterilizing deer (City of Ann Arbor, 2014). The city partnered with Washtenaw County Parks and Recreation, the University of Michigan, and the Humane Society of Huron Valley as it was researching options, and it sought feedback from the Michigan Department of Natural Resources and its residents before choosing an option (City of Ann Arbor, 2014).

In 2016, Ann Arbor approved a deer management plan that included two of the options it had researched: hiring sharpshooters to kill deer and conducting additional research into the possibility of sterilizing deer (City of Ann Arbor, 2014). For the next four years, the city hired sharpshooters every winter to kill a certain number of deer in city parks and other areas (City of Ann

Arbor, 2019). It also continued researching the possibility of sterilizing deer, and in 2016, it added sterilizing deer to its deer management plan (City of Ann Arbor, 2019). At the end of four years, the city had killed 386 deer and sterilized 78 additional deer (City of Ann Arbor, 2019) As it implemented the plan, the city continued to work with Washtenaw County Parks and Recreation, the University of Michigan, the Humane Society of Huron Valley, the Michigan Department of Natural Resources, and its residents to evaluate it (City of Ann Arbor, 2019).

**Ann Arbor's Deer Management Situation and Multispecies Communicative Democracy**

Ann Arbor's deer management plan ended in January 2019, and the city is currently writing a report that will likely state if and how it will continue addressing its deer management situation. In this section, I imagine that the city has decided to continue addressing the situation by allowing me and a group of other facilitators to apply the theory of multispecies communicative democracy to it, and I detail what the plan we develop entails. In particular, I focus on how the plan includes nonhuman animals and ecosystems in decision-making processes. I also focus on issues that arise as it includes them.

Before deliberating about Ann Arbor's deer management situation, the other facilitators and I start identifying all of the situation's stakeholders. Because the initial plan already included many human stakeholders, we focus on nonhuman stakeholders, specifically nonhuman animal and ecosystem stakeholders. We immediately identify one nonhuman animal stakeholder, the deer. We also identify one ecosystem stakeholder, the city's parks. However, identifying additional stakeholders presents a challenge: the situation certainly affects the interests of other nonhuman animals and ecosystems, but we must learn more about it to identify them. To address this challenge, we decide to learn more about the situation as well as about deer and urban ecosystems in general. Through this process, we identify several other nonhuman animal stakeholders, such as the herbivorous mammals and songbirds who eat or otherwise rely upon the plants deer eat. We also

identify several other ecosystem stakeholders like the yards and gardens in which some of the plants deer eat live. Identifying stakeholders now presents another challenge: the situation affects the interests of so many nonhuman animals and ecosystems that we cannot list them all; moreover, the situation also affects the interests of many other nonhuman stakeholders like plants and populations. To address this challenge, we decide to identify as many nonhuman animal and ecosystem stakeholders as we can in a certain amount of time, but also note that how much time we spend identifying them and whether we should also identify other nonhuman stakeholders warrant further discussion. Ultimately, we identify the following stakeholders: all of the human stakeholders who were included in the initial plan and all of the nonhuman animal and ecosystem stakeholders I have already mentioned, as well as the pollinators who also eat or otherwise rely upon the plants deer eat; the ticks who rely upon deer to eat; and the forests and prairies in which some of the plants deer eat and deer themselves live.

After identifying the human and nonhuman stakeholders, the other facilitators and I start inviting them to participate in the deliberation. At first, we consider inviting all of them, as no two stakeholders share the same interests, no matter how similar they may seem. However, inviting every stakeholder presents a challenge: if we were to invite every stakeholder, we would have neither the time nor the space to deliberate effectively; indeed, even if we grouped similar stakeholders together, we still may not have the time to deliberate effectively. Thus, we decide to first group the human stakeholders by their perspectives, the nonhuman animal stakeholders by their species or other groups, and the ecosystem stakeholders by their types; and then invite one member of each of the most-affected stakeholder groups. Inviting members of stakeholder groups presents another challenge: if we are to invite one member of each of the most-affected stakeholder groups, we need a criterion by which to determine which groups the situation affects the most. To address this challenge, we decide to first adopt Birch's (1993) principle of universal consideration, according to

which we must be open to inviting a member of any stakeholder group; and then use the theory of utilitarianism, according to which we must invite members of those stakeholder groups whose ability to meet their basic and extended interests the situation most affects, up to a certain number of participants (de Lazari-Radek & Singer, 2017). At the same time, we note that our adoption of the principle of universal consideration, use of the theory of preference utilitarianism, and grouping of stakeholders by preference, species or other group, and type warrant further discussion. Ultimately, we invite one member of each of the following stakeholder groups: all of the human stakeholder groups that were included in the initial plan, because we do not want to exclude any groups that were already included; the deer, because many deer management options would affect their ability to meet even their basic interests in surviving; the herbivorous mammals, because a growing deer population and their inability to migrate in a city may affect their ability to meet their extended interests in easily finding food and shelter; and forests and prairies, because many deer management options and a growing deer population may affect their ability to meet their extended interests in having a diversity of plant and nonhuman animal species. We do not invite members of the following stakeholders groups: songbirds and pollinators, because their ability to migrate would mitigate a growing deer population's effect on their ability to meet their extended interests in easily finding food and shelter; and yards and gardens, because humans' control over them has already limited their ability to meet their basic or extended interests.

Having invited the participants, the other facilitators and I recognize that the deer, herbivorous mammal, forest, and prairie will be unable to fully participate in the deliberation, so we start selecting representatives for them. Initially, we consider selecting biologists to represent the deer and mammal and ecologists to represent the forest and prairie. However, we soon realize that these selections are problematic: while the representatives would have scientific understandings of their constituents, scientific understanding is not the only standard of representation related to

selecting representatives. Rather, the standards are that representatives are authorized by their constituents and represent their constituents' interests. To meet them, representatives must have not only scientific understandings of their constituents, but also extended experience interacting with or observing them and holistic understandings of how they flourish. To address this problem, we search for representatives who meet all of these standards. Unfortunately, this solution is also problematic: few scientists or other people meet these standards, particularly for Ann Arbor's deer, mammals, forests, and prairies. To address this problem, we decide to select the available representatives who most closely approach them, but also note that searching for representatives who meet them warrants further discussion. Ultimately, we select a deer biologist from the University of Michigan to represent the deer, as they have a scientific understanding of local deer and extended experience observing them; a wildlife rehabilitator from the city to represent the mammal, as they have extended experience interacting with local mammals and holistic understanding of how they flourish; a forest ecologist from the university to represent the forest, as they have a scientific understanding of the local forests and extended experience observing them; and an environmentalist from a nearby nonprofit organization to represent the prairie, as they have extended experience interacting with the local prairies and a holistic understanding of how they flourish.

After selecting the representatives, the other facilitators and I start choosing a setting for the deliberation. Initially, we consider deliberating in the same building in which Ann Arbor discusses other plans. However, we quickly realize that this choice is problematic: the deer and herbivorous mammal would likely be unable or unwilling to be present in the building in which the city discusses plans, and the forest and prairie would obviously be unable to be present in it. To address this problem, we search for a setting that all of the stakeholders would be able and willing to be present. One option is to deliberate in forest or prairie itself, as the deer and mammal may already be present

in it or at least be willing to be, and the forest or prairie would obviously already be present in itself. That said, the forest would not be able to be present in the prairie, and the prairie would not be able to be present in the forest. Another option is to deliberate where the forest borders the prairie, or in both the forest and the prairie at different times. Unfortunately, both of these options are still problematic: the deer and mammal may not be willing to be present in the forest or prairie. To address this problem, we decide to plan the deliberation for when the deer and mammal are most likely to be present, but also note that nonhuman animal stakeholders' presence warrants further discussion. Ultimately, we choose to deliberate at a border between the forest and the prairie, so both ecosystem stakeholders can be present; and in the evening, because the deer and mammal are crepuscular; but we also bring photographs, videos, and other representations of the deer and mammal in case they are not present.

Having chosen a setting, the other facilitators and I are prepared to facilitate the deliberation. To start the deliberation, we introduce the situation, ensure that all of the stakeholders are present, and give them the opportunity to greet one another. We then give each stakeholder the opportunity to share their position through the exchange of rational arguments, rhetoric, or narrative while the other stakeholders pay attention. This process presents a challenge: the nonhuman animal and ecosystem stakeholders, and perhaps some human stakeholders, are able to participate in it to an extent, but not fully. For example, the deer can be present and greet the other stakeholders by responding to their presence, but she may not be able to share her position by exchanging rational arguments, rhetoric, or narratives or pay attention to other stakeholders. To address this challenge, we decide to ask these stakeholders' representatives to mediate their constituents' participation. This process itself proves somewhat challenging, as the representatives struggle to separate their own interests from their constituents' interests. Thus, we also note that mediated participation warrants further discussion.

After the stakeholders and their representatives have shared their positions, the other facilitators and I ask them to make a decision about the situation. Over the course of some deliberations, stakeholders move from considering their own interests to considering one another's collective interest and are therefore be able to reach a consensus. That said, this situation's complex nature makes considering the collective interest and reaching a consensus unlikely. For that reason, the decision making process presents a challenge: unable to reach a consensus but needing to make a decision, the stakeholders must vote on the decision; however, the composition of the group of stakeholders does not reflect the composition of the society from which they were invited, so the vote will not be democratic. To address this challenge, we decide to weight the votes so that the human, nonhuman animal, and ecosystem stakeholders all have one third of the votes, as a standard of representation we have not yet met is the special representation of marginalized groups like nonhuman animals and ecosystems. This weighting proves contentious, as some of the human stakeholders argue that each stakeholder's vote should count equally. Thus, we also note that voting warrants further consideration.

The stakeholders and their representatives having made a decision, the other facilitators and I reflect on the decision with the stakeholders and their representatives and by ourselves. First, we ask any stakeholders and representatives who are opposed to the decision to share their opposition, as we will communicate their statements of opposition as well as the decision itself to Ann Arbor. While statements of opposition do not solve the challenge of a lack of consensus, they do help mitigate it. We then instruct the stakeholders and representatives to communicate the decision and statements of opposition to their constituents, as well as to reflect on their participation and representation in the deliberation. In this way, we will meet the standard of representation of accountability. Finally, we schedule a follow-up deliberation at a certain time in the future, at which

we will deliberate on the deer management situation as well as the extent to which the decision addressed it.

**A Set of Practices for Multispecies Communicative Democracy**

Having detailed the imaginative scenario in with Ann Arbor applies the theory of multispecies communicative democracy to its deer management situation, I can now list a set of practices for multispecies communicative democracy:

Step 1: *Identify the stakeholders* by first learning about the situation and then listing as many of the humans, nonhuman animals, and ecosystems that it affects in a certain amount of time.

Step 2: *Invite the participants* by (a) grouping the stakeholders by perspective, species or other group, or type, (b) adopting the principle of universal consideration to be open to inviting a member of any stakeholder group, and (c) using the theory of preference utilitarianism to invite one member of each of those stakeholder groups whose ability to meet their basic and extended interests the situation most affects, up to a certain number of participants.

Step 3: *Select the representatives* for the nonhuman stakeholders by (a) searching for scientists, activists, or other people who have extended experience interacting with or observing the stakeholders, scientific understandings of them, and holistic understandings of how they flourish, and (b) selecting the people who meet or most closely approach these standards.

Step 4: *Choose the setting* for the deliberation by (a) if possible, deliberating in the ecosystem stakeholders, (b) if possible, deliberating when the nonhuman animal stakeholders are present in the ecosystem, and (c) if one or both is not possible, filling the setting with photographs, videos, or other representations of the nonhuman animal and ecosystem stakeholders.

Step 5: *Deliberate* by (a) introducing the situation, (b) ensuring that all of the stakeholders are present, (c) giving them the opportunity to greet one another, (d) giving each stakeholder the opportunity to share their positions through the exchange of rational arguments, rhetoric, or

narratives, and (e) having the representatives of stakeholders unable to fully deliberate mediate their constituents' participation.

Step 6: *Make a decision* by (a) if possible, reaching a consensus, and (b) if not possible, weighting human, nonhuman animal, and ecosystem stakeholders' votes to give marginalized groups special representation and voting.

Step 7: *Reflect on the decision and deliberation* by (a) sharing opposition to the decision with other stakeholders and representatives, (b) communicating the decision and statements of opposition to the constituents, and (c) planning a follow-up deliberation at a certain time in the future.

I can also list set of topics for further discussion:

1. How much time should facilitators spend identifying stakeholders?

2. Should facilitators identify other nonhuman stakeholders than nonhuman animals and ecosystems?

3. How should facilitators group stakeholders?

4. How should facilitators determine which stakeholder groups are most affected?

5. To what extent should facilitators search for people who meet the standards for representation?

6. To what extent should facilitators attempt to ensure nonhuman animal stakeholders' presence?

7. How should facilitators prepare representatives for mediated participation?

8. To what extent should voting be democratic?

## Conclusion

At the same time Ann Arbor was addressing its deer management situation, the City of Ashland, Oregon, was confronted with a similar situation (Yunker, 2018). The city is home to a population of deer, and some of its residents had started viewing them as a nuisance (Yunker, 2018).

According to one resident, "a chorus of voices began calling for a 'culling' of the deer" (Yunker, 2018, p. 55). John Yunker (2018) heard this chorus and recognized that the deer themselves were unable to address it. For that reason, he began writing anonymous letters from "the voice of an 'Ashland deer'" (Yunker, 2018, p. 55) and publishing them in a local periodical. Yunker's efforts are noteworthy; however, the city's response to his letters are even more noteworthy. Shortly after the periodical published them, residents began writing and publishing their own letters (Yunker, 2018). Some of the letters supported the deer, while others opposed him (Yunker, 2018). More noteworthy, though, is

> not just that people were responding to the deer, including addressing the deer directly, but that there was a great deal of passion behind their letters. Instead of a debate between two humans with the deer remaining voiceless, here was a debate between the human and the deer. (Yunker, 2018, p. 56)

Put differently, the resident, even those residents who were calling for a deer cull, were including the deer in their deliberations.

As I share my set of practices for multispecies communicative democracy, one may think that they are too radical, or even too silly, to become common practice. I agree that they are radical, but their radical nature does not mean they cannot become common practice. Indeed, the story of the Ashland deer shows that people may already be willing to implement some of the practices of multispecies communicative democracy. Implementing all of the practices will be challenging, but it is possible. In the next chapter, I explore the US American public's support for multispecies communicative democracy and the factors influencing it as a first step in meeting this challenge.

WORKS CITED

WORKS CITED


Abram, D. (2010). *Becoming animal: An Earthly cosmology*. New York, NY: Vintage Books.

Bächtiger, A., Dryzek, J. S., Mansbridge, J., & Warren, M. E. (2018). Deliberative democracy: An introduction. In A. Bächtiger, J. S. Dryzek, J. Mansbridge, & M. E. Warren (Eds.), *The Oxford handbook of deliberative democracy* (pp. 1–31). Oxford, UK: Oxford University Press.

Ball, T. (2006). Democracy. In A. Dobson & R. Eckersley (Eds.), *Political theory and the ecological challenge* (pp. 131–147). Cambridge, UK: Cambridge University Press.

Bailey, E. T. (2010). *The sound of a wild snail eating*. Chapel Hill, NC: Algonquin Books of Chapel Hill.

Birch, T. H. (1993). Moral considerability and universal consideration. *Environmental Ethics, 15*(4), 313–332. doi:10.5840/enviroethics19931544

Carolan, M. S. (2006). Ecological representation in deliberation: The contribution of tactile spaces. *Environmental Politics, 15*(3), 345–361. https://doi.org/10.1080/09644010600627535

Carson, R. (2002). *Silent spring* (40th anniversary ed.). New York, NY: Mariner Books.

Chappell, Z. (2012). *Deliberative democracy: A critical introduction*. New York, NY: Palgrave Macmillan.

Childs, C. (2007). *The animal dialogues: Uncommon encounters in the wild*. New York, NY: Little, Brown and Company.

City of Ann Arbor. (2014). Report to City Council regarding deer management. Retrieved from https://www.a2gov.org/departments/community-services/PublishingImages/Pages/Deer-Management-Project-/City%20Council%20Deer%20Management%20Report.pdf

City of Ann Arbor. (2019). City of Ann Arbor deer management. Retrieved from https://www.a2gov.org/departments/community-services/Pages/Deer-Management-Project-.aspx

Clifford, S. (2012). Making disability public in deliberative democracy. *Contemporary Political Theory, 11*(2), 211–228. doi:10.1057/cpt.2011.11

Cochrane, A. (2018). *Sentientist politics: A theory of global inter-species justice*. Oxford, UK: Oxford University Press.

Despret, V. (2016). *What would animals say if we asked the right questions?* (B. Buchanan, Trans.). Minneapolis: Minnesota University Press. (Original work published 2012)

De Lazari-Radek, K., & Singer, P. (2017). *Utilitarianism: A very short introduction*. Oxford, UK: Oxford University Press.

De Waal, F. (2016). *Are we smart enough to know how smart animals are?* New York, NY: W. W. Norton & Company.

Dobson, A. (1996). Representative democracy and the environment. In W. M. Lafferty & J. Meadowcroft (Eds.), *Democracy and the environment: Problems and prospects* (pp. 124–139). Cheltenham, UK: Edward Elgar.

Dobson, A. (2010). Democracy and nature: Speaking and listening. *Political Studies, 58*(4), 752–768. https://doi.org/10.1111/j.1467-9248.2010.00843.x

Donaldson, S., & Kymlicka, W. (2011). *Zoopolis: A political theory of animal rights.* Oxford, UK: Oxford University Press.

Donaldson, S., & Kymlicka, W. (2014). Unruly beasts: Animal citizens and the threat of tyranny. *Canadian Journal of Political Science, 47*(1), 23–45. doi:10.1017/S0008423914000195

Driessen, C. (2014). *Animal deliberation: The co-evolution of technology and ethics of the farm* (Doctoral dissertation). Retrieved from http://edepot.wur.nl/318665

Dryzek, J. (2002). *Deliberative democracy and beyond: Liberals, critics, contestations.* Oxford, UK: Oxford University Press.

Eckersley, R. (1999). The discourse ethic and the problem of representing nature. *Environmental Politics, 8*(2), 24–49. https://doi.org/10.1080/09644019908414460

Ellis, S. (2009). *The man who lives with wolves.* New York, NY: Three Rivers Press.

Fishkin, J. S. (2011). *When the people speak: Deliberative democracy & public consultation.* Oxford, UK: Oxford University Press.

Garner, R. (2016a). Animal rights and the deliberative turn in democratic theory. *European Journal of Political Theory, 0*(0), 1–21. https://doi.org/10.1177/1474885116630937

Garner, R. (2016b). Animals and democratic theory: Beyond an anthropocentric account. *Contemporary Political Theory, 16*(4), 459–477. doi: 10.1057/s41296-016-0072-0

Gendler, T. (2010). *Intuition, imagination, and philosophical methodology.* Oxford, UK: Oxford University Press.

Ginsburg, B. (2018). *The ethosophy of the Grizzly Man: Timothy Treadwell's three ethologies* (Unpublished master's thesis). University of Montana, Missoula, MT.

Goodin, R. E. (1996). Enfranchising the Earth, and its alternatives. *Political Studies, 44*(5), 835–849. https://doi.org/10.1111/j.1467-9248.1996.tb00337.x

Goodin, R. E. (2007). Enfranchising all affected interests, and its alternatives. *Philosophy & Public Affairs, 35*(1), 40–68. https://doi.org/10.1111/j.1088-4963.2007.00098.x

Gutmann, A., & Thompson, D. (2004). *Why deliberative democracy?* Princeton, NJ: Princeton University Press.

Hess, E. (2009). *Nim Chimpsky: The chimp who would be human.* New York, NY: Bantam.

Hribel, J. (2010). *Fear of the animal planet: The hidden history of animal resistance.* Petrolia, CA: CounterPunch.

Humphrey, M., & Stears, M. (2006). Animal rights protest and the challenge to deliberative democracy. *Economy and Society, 35*(3), 400–422. https://doi.org/10.1080/03085140600844969

Hutto, J. (2014). *Touching the wild: Living with the mule deer of Deadman Gulch.* New York, NY: Skyhorse Publishing.

King, J. C. (2016). Philosophical and conceptual analysis. In H. Cappelen, T. S. Gendler, & J. Hawthorne (Eds.), *The Oxford handbook of philosophical methodology* (pp. 249–261). Oxford, UK: Oxford University Press.

Kohn, E. (2013). *How forests think: Toward an anthropology beyond the human.* Berkeley: University of California Press.

Kolbert, E. (2014). *The Sixth Extinction: An unnatural history.* New York, NY: Henry Holt and Company.

Low, P. (2012). The Cambridge declaration on consciousness. Retrieved from http://fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf

Meijer, E. R. (2017). *Political animal voices.* (Doctoral dissertation). Retrieved from https://hdl.handle.net/11245.1/7c9cfda4-560d-4d67-94ea-7bdda29554c9

Miller, D. (2009). Democracy's domain. *Philosophy & Public Affairs, 37*(3), 201–228. https://doi.org/10.1111/j.1088-4963.2009.01158.x

Mills, M. (1996). Green democracy: The search for an ethical solution. In B. Doherty & M. de Geus (Eds.), *Democracy and green political thought: Sustainability, rights, and citizenship* (pp. 97–114). London, UK: Routledge.

Morar, N., Toadvine, T., & Bohannan, B. J. M. (2015). Biodiversity at twenty-five years: Revolution or red herring? *Ethics, Policy & Environment, 18*(1), 16–29. https://doi.org/10.1080/21550085.2015.1018380

Näsström, S. (2011). The challenge of the all-affected principle. *Political Studies, 59*(1), 116–134. https://doi.org/10.1111/j.1467-9248.2010.00845.x

Nussbaum, M. (2006). *Frontiers of justice: Disability, nationality, species membership.* Cambridge, MA: Harvard University Press.

O'Neill, J. (2001). Representing people, representing nature, representing the world. *Environment and Planning C: Government and Policy, 19*(4), 483–500. https://doi.org/10.1068/c12s

Peirce, C. S. (1931a). *Collected papers of Charles Sanders Peirce* (Vol. 1). Cambridge, MA: Harvard University Press.

Peirce, C. S. (1931b). *Collected papers of Charles Sanders Peirce* (Vol. 2). Cambridge, MA: Harvard University Press.

Planinc, E. (2014). Democracy, despots, and wolves: On the dangers of *Zoopolis*'s animal citizens. *Canadian Journal of Political Science, 47*(1), 1–21. https://doi.org/10.1017/S0008423914000183

Plumwood, V. (1993). *Feminism and the mastery of nature.* London, UK: Routledge.

Schlosberg, D. (2007). *Defining environmental justice: Theories, movements, and nature.* Oxford, UK: Oxford University Press.

Singer, P. (1983). *Hegel: A very short introduction.* Oxford, UK: Oxford University Press.

Smith, G. (2003). *Deliberative democracy and the environment.* London, UK: Routledge.

Terrace, H. S., Petitto, L. A., Sanders, R. J., & Bever, T. G. (1979). Can an ape create a sentence? *Science, 206*(4421), 891–902. doi: 10.1126/science.504995

Treadwell, T. (1997). *Among grizzlies: Living with wild bears in Alaska.* New York, NY: Ballantine.

Warren, M. E. (2017). The all affected interests principle in democratic theory and practice. Retrieved from https://irihs.ihs.ac.at/4306/15/Warren%20%20All%20Affected%20Interests%20Principle.pdf

Young, I. M. (2000). *Inclusion and democracy.* Oxford, UK: Oxford University Press.

Yunker, J. (2018). Giving animals a voice: Letters from an Ashland deer. *Minding Nature, 11*(2), 54–59.

# CHAPTER 3: UNDERSTANDING PUBLIC SUPPORT FOR MULTISPECIES COMMUNICATIVE DEMOCRACY

In the previous chapter, I theorized multispecies communicative democracy (MCD), an approach to making decisions about environmental issues that is rooted in deliberative democracy. Deliberative democracy is a model of democracy in which decisions are made through democratic deliberations, decision-making processes in which stakeholders share their positions on issues and attempt to reach consensus on them (Chappell, 2012). MCD develops upon deliberative democracy by including nonhuman stakeholders in democratic deliberations through proxy representation and direct participation. In theory, MCD is a promising approach to environmental decision making because it has the potential to make decisions more just and effective. However, its proponents face several obstacles to putting it into practice. One of these obstacles is the social norm that decision-making processes should be aggregative rather than deliberative, and another is the norm that they should only include humans. An important first step in overcoming these obstacles is gaining a clearer understanding of the public's level of support for MCD and the factors influencing their support. To my knowledge, though, no study has attempted to gain such an understanding. This chapter begins to fill that research gap by exploring public support for MCD through quantitative and qualitative analyses of a survey of US American adults.

## Background

### Deliberative Democracy

**Deliberative Democracy in Theory.** As defined above, deliberative democracy is a model of democracy in which decisions are made through democratic deliberations, decision-making processes in which stakeholders share their positions on issues and attempt to reach consensus on them (Chappell, 2012). Democratic deliberations can occur at both the macro level, such as when

citizens debate issues in the public sphere, and the micro level, as when people discuss issues at town hall meetings (Chappell, 2012). At both levels, deliberative democracy is rooted in Dewey's (1954) theory of participatory democracy, according to which a group of individuals only becomes a public and forms a state when they recognize the indirect consequences of their actions on one another. As individuals can only become aware of these consequences by communicating them to one another, communicating consequences is integral to democracy. While Dewey (1954) does not directly refer to this communication as democratic deliberation, his theory of democracy closely parallels the later model of deliberative democracy. For example, Gutmann and Thompson (2004) characterize deliberative democracy as

> a form of government in which free and equal citizens (and their representatives) justify decisions in a process in which they give one another reasons that are mutually acceptable and generally accessible, with the aim of reaching decisions that are binding on all at present but open to challenge in the future. (p. 7)

Similarly, Fishkin (2011) characterizes democratic deliberation as "the process by which individuals sincerely weigh the merits of competing arguments in discussions together" (p. 33). Like Dewey, these scholars make communication integral to their theory of deliberative democracy. Other scholars have offered different characterizations of deliberative democracy. However, all characterizations of it give communication an integral role.

**Deliberative Democracy in Practice.** When put into practice, deliberative democracy has had several benefits. In a review of the empirical literature on deliberative democracy, Delli Carpini, Cook, and Jacobs (2004) found that democratic deliberations about social issues can result in decisions that are substantively and procedurally satisfactory, and that participating in deliberations can increase citizens' political engagement and efficacy. Similarly, Dietz and Stern (2008) found that democratic deliberation and other forms of public participation in environmental decision-making

can lead to higher quality and more legitimate decisions and build citizens' civic engagement and capacity. To be sure, other scholars have countered that deliberative democracy is most beneficial under ideal conditions, and that such conditions are hard to achieve. For example, Ryfe's (2005) review of the empirical literature found that successful deliberations require that participants have an adequate level of knowledge, skills, motivation, and civic identity. Nonetheless, even imperfect deliberations can have civic benefits. In a study of a series of public meetings about railroad construction, Grimes (2008) found that participants in deliberations with non-ideal conditions gave more positive assessments of the resulting decision than non-participants.

## Multispecies Communicative Democracy

**Multispecies Communicative Democracy in Theory.** While many scholars have developed theories of democracy that include the interests of nonhuman stakeholders, few of these approaches are rooted in deliberative democracy. For example, Donaldson and Kymlicka (2011) offer a political theory of animal rights in which societies grant universal basic rights to nonhuman animals as well as extended citizenship rights for domesticated animals, norms of international justice for wild animals, and denizenship for liminal animals. In such societies, nonhuman stakeholders would undoubtedly be part of decision-making processes. However, the theory leaves the question of how they would be part of them largely unanswered. Multispecies communicative democracy (MCD) answers this question by integrating theories like Donaldson and Kymlicka's (2011) with theories of deliberative democracy. It draws inspiration from Young's (2000) efforts to make deliberative democracy more inclusive of humans. According to her, "[t]he normative legitimacy of a democratic decision depends on the degree to which those affected by it have been included in the decision-making processes and have had the opportunity to influence the outcomes" (Young, 2000, pp. 5–6). However, most theories of deliberative democracy limit deliberative communication to exchanging rational arguments, an example of "implicit cultural biases that can lead to exclusions in practice"

(Young, 2000, p. 122). To correct for these biases, Young (2000) offers a theory of communicative democracy that expands deliberative communication to encompass greeting, rhetoric, and storytelling as well as exchanging rational arguments. MCD further expands deliberative communication to encompass communicative forms that are accessible to nonhuman stakeholders, such as the communication through direct experience with the natural world Abram (1997) describes in the following passage: "If, on the other hand, we wish to describe a particular phenomenon without repressing our direct experience, then we cannot avoid speaking of the phenomenon as an active, animate entity with which we find ourselves engaged" (p. 56).

Few scholars have addressed MCD. One scholar who has is Eckersley (1999), who argues that all beings affected by a decision should be included in democratic deliberations about it, and that the communicative differences between humans and nonhumans call for humans to find a new approach to deliberations. Dryzek (2002) agrees that nonhuman stakeholders should be included in democratic deliberations, and he suggests two methods of including them: first, humans can consider nonhuman stakeholders' interests in addition to their own during deliberations; and second, they can pay attention to feedback signals from the environment like mass extinction and climate change. To these methods, Eckersley (2004) adds a third, proxy representation, in which one or more humans represent nonhuman stakeholders. Driessen (2014) adds a fourth—direct participation—in which nonhuman animals participate in deliberations, such as when cows express their interest in being milked at different times and farmers decide to use milking robots.

**Multispecies Communicative Democracy in Practice.** As few scholars have addressed MCD, few groups have put it into practice. One example of MCD in practice is One Earth Conservation, a nonprofit organization that has three parrots serving on its organizational board (Joyner & Koelln, 2018). According to the organization's website, the parrots help them challenge the norm of human exceptionalism as they make policy decisions (Joyner & Koelln, 2018). Driessen

(2014) offers several other examples, including deliberations between humans and cows over the use of milking robots as well as deliberations between humans and cats over the installation of cat doors.

Given that deliberative democracy has led to higher quality decisions and a more engaged citizenry, MCD should have similar benefits; however, the fact that few groups have put MCD into practice means that research on its benefits is minimal. Mumby and Plotnik's (2018) review of the empirical literature on elephant behavior and human-elephant conflict mitigation does suggest that deciding upon mitigation strategies through multispecies democratic deliberations would make them more effective, but it does not uncover any cases in which such deliberations have occurred. Driessen's (2014) research on using MCD to make decisions on farms offers some evidence of its efficacy, as does my own research on using MCD to make decisions at a nature center, which I detail in the next chapter.

## Public Support for Multispecies Communicative Democracy

**Obstacles to Multispecies Communicative Democracy.** If multispecies communicative democracy is to become institutionalized, its proponents must overcome several obstacles to putting it into practice. One obstacle is the social norm that decisions should be made through aggregation rather than deliberation. A clear example of this norm is the reality that most US American adults' political activity is limited to voting, a process through which their preferences for a politician are aggregated and the politician a majority of adults prefer is elected (Chappell, 2012). Another obstacle is the norm that only humans should be included in decision-making processes. While people may consider the interests of nonhuman stakeholders when they vote, giving them a vote is very uncommon. In 2014, the New Zealand government made the ecosystem Te Urewera a legal entity (Ruru, 2014), and in 2018, an Indian court declared all nonhuman animals legal persons (PTI, 2018). These acts are certainly noteworthy, but their description as "legally revolutionary" (Ruru, 2014, para. 2) underscore how rare they are.

A first step to overcoming these obstacles is to gain a clearer understanding of the US American public's level of support for MCD and the factors influencing their support. However, little research exists on public support for deliberative democracy. Moreover, to my knowledge, no research exists on public support for MCD. Nonetheless, the existing research on public support for deliberative democracy is worth noting, as is research on factors influencing environmentally significant behaviors.

**Public Support for Multispecies Communicative Democracy and Factors Influencing It.** Although deliberative democracy and MCD can be beneficial, evidence suggests that the US American public may not support their institutionalization. One common critique of deliberative democracy is that democratic deliberations require significantly more time and engagement from citizens than voting (Chappell, 2012). According to Chappell (2012), this critique may be a reason the public would not support the institutionalization of deliberative democracy. At the same time, Chappell (2012) also suggests that participating in democratic deliberations make people more supportive of deliberative democracy. Thus, even if the public is not strongly supportive of MCD, they may become more supportive of it over time.

As supporting MCD is an environmentally significant behavior, the literature on environmentally significant behaviors offers additional factors that may influence public support for MCD. Following Stern (2000), four types of factors can influence environmentally significant individual behaviors: attitudinal factors, contextual forces, personal capabilities, and habits or routines. Attitudinal factors include personal norms, beliefs, and values (Stern, 2000). Not surprisingly, people with pro-environmental attitudes are more likely to engage in pro-environmental behaviors like recycling; however, other attitudes can lead people to engage in pro-environmental behaviors, such as when frugality leads people to reuse products rather than purchase new ones (Heberlein, 2012; Kollmuss & Agyeman, 2002). Contextual forces include factors like community

norms and infrastructure (Stern, 2000). Again not surprisingly, people who live in communities with pro-environmental norms and infrastructure like recycling programs are more likely to engage in pro-environmental behavior (Heberlein, 2012; Kollmuss & Agyeman, 2002). Personal capabilities include knowledge and skills as well as time and resources, and people with greater knowledge of or skill at pro-environmental behaviors like upcycling used products or more time and resources in general are more likely to engage in pro-environmental behaviors (Heberlein, 2012; Kollmuss & Agyeman, 2002). Finally, habits or routines are behavioral pattern that can support or challenge pro-environmental behaviors (Stern, 2000).

Some studies have found that demographic factors like gender can influence environmentally significant behaviors, but others have argued that demographic factors themselves do not influence pro-environmental behaviors but rather serve as proxies for the contextual forces and personal capabilities that do (Stern, 2000). For example, income may not influence recycling behavior, but it can serve as a proxy for the capability of driving to a recycling center. Demographic factors can also influence pro-environmental attitudes, which in turn influence environmentally significant behavior (Heberlein, 2012). Similarly, educational factors like education level and knowledge are correlated with environmentally significant behavior, but they are best thought of as proxies for contextual forces and personal capabilities (Kollmuss & Agyeman, 2002). Pro-environmental attitudes also mediate their influence on pro-environmental behavior (Heberlein, 2012).

Another factor that may influence public support for MCD is interaction with nature and nonhuman animals. For example, Mayer, McPherson Frantz, Bruehlman-Senecal, and Dolliber (2009) found that interaction with nature had positive effects on people's sense of wellbeing. Moreover, these positive effects occurred regardless of whether people directly interacted with nature by walking in natural settings or indirectly interacted with it by watching videos of natural

settings (Mayer et al., 2009). Similarly, Martínez-Soto, Gonzales-Santos, Barrios, and Montero-López Lena (2014) found that indirect interaction with nature by viewing photographs of natural settings improved people's emotional states. Other scholars have found that interaction with nature and nonhuman animals can not only improve people's sense of wellbeing, but also strengthen their pro-environmental attitudes and behaviors. In a study that focused on indirect interactions with nonhuman animals, Kalof, Zammit-Lucia, and Kelly (2011) found that museum visitors were more likely to think about animals' personalities and their kinship with animals after viewing an exhibition of animal portraiture. In a related study, Kalof, Zammit-Lucia, Bell, and Granter (2015) found that college students were also more likely to think of animals as individuals and as kin after viewing animal portraiture. Berenguer (2007) extends these findings by showing that participants who viewed a photograph of a bird or tree and were prompted to empathize with the photograph's subject allocated more funds to an environmental organization than participants who viewed the photograph but were not prompted to empathize with its subject. O'Neill and Nicholson-Cole (2009) further nuance these findings by demonstrating that, while fear-inducing representations of climate change increased participants' engagement with the issue, they were less effective than nonthreatening representations.

## Methods

### Research Questions

As a review of the literature indicates, public support for multispecies communicative democracy (MCD) is important, but our understanding of it is limited. In this chapter, I aim to increase our understanding of public support for MCD and the factors influencing it by asking the following research questions:

1. To what extent do US American adults support including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes?

2. To what extent do demographic factors, including age, gender, race, religion, political ideology, location, and income, influence US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes?
3. To what extent do attitudinal factors, including sustainability attitude and animal attitude, US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes?
4. To what extent to educational factors, including education level and sustainability knowledge, influence US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes?
5. To what extent does seeing a photograph of an ecosystem, nonhuman animal, or plant influence US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes?
6. How do US American adults explain their level of support for including proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes?

I focus on MCD through proxy representation for two pragmatic reasons. First, MCD through proxy representation is less radical than MCD through direct participation. Given that one of the study's aims is to contribute to the use and institutionalization of MCD, focusing on the less radical type of MCD, which people are more likely to support, is pragmatic. Second, MCD through proxy representation is easier to explain than MCD through direct participation. Given that the research participants are likely unfamiliar with MCD, focusing on the easier to explain type of MCD, which participants are more likely to understand, is also pragmatic.

I also differentiate among ecosystems, nonhuman animals, and plants because people may see them as morally and political distinct. Ecosystems have characteristics that nonhuman animals

and plants do not, such as emergent properties, and nonhuman animals have characteristics that ecosystems and plants do not, such as sentience. People may believe that some of the differences in characteristics are morally significant while others are not. For example, Lynn (1998) highlights four value paradigms people may hold: anthropocentrism, according to which only humans have intrinsic value; ecocentrism, according to which humans and ecosystems have intrinsic value; biocentrism, according to which humans and nonhuman animals have intrinsic value; and geocentrism, according to which humans, nonhuman animals, and ecosystems all have intrinsic value. People who hold different value paradigms may also support different policies. For instance, people who hold ecocentric value paradigms may be more likely to support policies that benefit ecosystems than policies that benefit nonhuman animals, and people with biocentric value paradigms may be more likely to support policies that benefit nonhuman animals than policies that benefit ecosystems.

**Hypotheses**

In light of the existing literature, I make the following hypotheses:

1. US American adults have low levels of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes, but their levels of support are higher for ecosystems and nonhuman animals than for plants.
2. Age, gender, race, religion, political ideology, location, and income all have significant influences on US American adults' level of support for including proxy representatives for ecosystems, nonhuman animals, and plants in decision-making processes.
3. Sustainability attitude and animal attitude both have significant, positive influences on US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, and plants in decision-making processes.

4. Education level and sustainability knowledge both have significant, positive influences on US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, and plants in decision-making processes.
5. Seeing a photograph of an ecosystem, nonhuman animal, or plant has a significant, positive influence on US American adults' level of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in decision-making processes.
6. As Research Question #6 is exploratory in nature, I have not made a hypothesis for it.

**Data Collection**

To answer my research questions, I surveyed a nationally representative convenience sample of 600 US American adults using Qualtrics, a company that hosts online surveys and recruits participants to take them.[9] To make the sample representative of the US American adult population, Qualtrics used quotas for age, gender, race, political ideology, location, and education level based upon the 2010 US Census for age, gender, race, location, and education level and a 2018 Gallup poll for political ideology. To improve the data's quality, Qualtrics also used attention and speeding checks. While the sample is still a convenience sample, social researchers have successfully used samples from Qualtrics and other online survey hosting companies as a less expensive alternative to random samples that still deliver high-quality data (Dietz & Whitely, 2018; Buhrmester, Kwang, & Gosling, 2011).

In the survey, I gave participants a scenario in which they were members of a stakeholder group deciding whether to construct an industrial complex on a tract of forest. The group's other members included a group chairperson, a professor of ecology at a local university, a member of the community's chamber of commerce, a member of a local labor union, a member of a nearby

[9] My survey was part of a longer survey developed by a class of doctoral students in Michigan State University's Environmental Science & Policy Program.

neighborhood homeowners' association, and a member of a local hiking group. The group chairperson asked participants if they wanted to include any other individuals in the decision-making process (See Appendix A for the scenario). After reading the scenario, participants were randomly assigned to one of three groups: an Ecosystem group, in which they were asked about their level of support for including a human proxy representative for the forest in the decision-making process; an Animals group, in which they were asked about their level of support for including a human proxy representative for the nonhuman animals that inhabit the forest in the decision-making process; and a Plants group, in which they were asked about their level of support for including a human proxy representative for the plants that inhabit the forest in the decision-making process. To measure the effect of seeing a photograph of an ecosystem, nonhuman animal, or plant, participants in the Ecosystem, Animals, and Plants groups were also randomly assigned to one of two subgroups: an Experimental group, which was shown a photograph of a forest, a deer, or a shrub before being asked about their level of support for including a human proxy representative for the forest, the nonhuman animals that inhabit the forest, or the plants that inhabit the forest; and a Control group, which was not shown a photograph before being asked about their level of support for including a human proxy representative for the forest in the decision-making process (See Appendix B for the photographs).

To measure the extent to which participants supported including human proxy representatives for ecosystems, nonhuman animals, and plants in decision-making processes, they were then asked, "To what extent would you support including an individual to speak for (the nonhuman stakeholder)?" on a seven-point, Likert-like scale ranging from "Strongly Oppose" to "Strongly Support." To measure how participants explained their level of support for including human proxy representatives for ecosystems, nonhuman animals, and plants in decision-making

processes, I prompted them "Think about your answer to the question above and explain why you chose it in the following box," in which they could freely type their explanation.

For demographic factors, I measured participants' age using a continuous variable with a unit of years; gender using a binary variable with male equal to one; race using a binary variable with white equal to one; political ideology using an seven-point, Likert-like variable with one being conservative; location using a binary variable with rural equal to one; and income using a continuous variable with a unit of thousands of dollars per year. For attitudinal factors, I measured participants' sustainability attitude using the Sustainability Attitudes Scale (SAS) (Zwickle & Jones, 2018), which uses a six-point, Likert-like scale with one being a weaker attitude, and their animal attitude using the Animal Attitudes Scale-5 (AAS-5) (Herzog, Grayson, & McCord, 2015), which uses a seven-point, Likert-like scale with one being a weaker attitude. The SAS is a valid, reliable measure of attitudes toward sustainability, which it operationalizes using the Brundtland definition of "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (The World Commission on Environment and Development, as cited in Zwickle & Jones, 2018, p. 437). The AAS-5 is a valid, reliable measure of attitudes toward animal welfare and protection (Herzog, Grayson, & McCord, 2015). For educational factors, I measured participants' education level using a six-point, ordinal variable ranging from "No high school" to "Graduate school," and their sustainability knowledge with the Assessment of Sustainability Knowledge (ASK) (Zwickle & Jones, 2018), which uses a one-point, ratio scale with zero being less knowledge. The ASK is a valid, reliable measure of knowledge about sustainability, again using the Brundtland definition (Zwickle & Jones, 2018). To minimize question order effects, I used counterbalancing.

**Data Analysis**

I used both quantitative and qualitative methods to analyze the survey data. Quantitatively, I used Stata 13 (StataCorp, 2013) to perform bivariate regressions of participants' level of support for

including human proxy representatives for the ecosystem, nonhuman animals, and plants in the decision-process on the demographic, attitudinal, and educational variables. I also performed one-tailed, two-sample t-tests assuming equal variances of level of support on being shown a photograph of a forest, a deer, or a shrub. Then, I performed multiple regressions of level of support on the demographic, attitudinal, educational, and photograph variables. Qualitatively, I first used inductive coding to organize participants' explanations of their level of support for including human proxy representatives for the ecosystem, nonhuman animals, and plants into categories. Then, I used pattern coding to organize the categories into more general themes.

## Results

### Quantitative Analysis

**Comparison of Qualtrics Sample to General Social Survey (GSS) Sample.** After I dropped all missing values using listwise deletion, the final Qualtrics sample included 591 US American adults. To determine the sample's generalizability to the US American adult population, I compared it to the 2016 General Social Survey (GSS) sample (Smith, Davern, Freese, & Morgan, 2019). The two samples were comparable in age, gender, race, religion, political ideology, location, and education level; however, the Qualtrics sample had a much higher mean income than the GSS sample because its income variable was positively skewed. For a detailed comparison of the Qualtrics and GSS samples, see Table 3.1.

Table 3.1

*Comparison of Qualtrics Sample to 2016 General Social Survey (GSS) Sample*

| | Qualtrics Sample | | | | GSS Sample | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | Std. Dev. | Min. | Max. | Mean | Std. Dev. | Min. | Max. |
| Age | 46 | 16 | 19 | 94 | 49 | 17 | 18 | 89 |
| Gender (Male=1) | 0.44 | 0.50 | 0 | 1 | 0.46 | 0.50 | 0 | 1 |
| Race (White=1) | 0.62 | 0.49 | 0 | 1 | 0.75 | 0.44 | 0 | 1 |
| Religion (Christian=1) | 0.55 | 0.50 | 0 | 1 | 0.72 | 0.45 | 0 | 1 |
| Political Ideology (Liberal=7) | 3.9 | 1.6 | 1 | 7 | 4.0 | 1.5 | 1 | 7 |
| Location (Rural=1)[10] | 0.22 | 0.42 | 0 | 1 | 0.30 | 0.46 | 0 | 1 |
| Income (in $1000s)[11] | 110 | 630 | 0 | 14000 | 63 | 48 | 1 | 170 |
| Education Level[12] | 3.2 | 1.5 | 1 | 6 | 3.4 | 1.7 | 1 | 6 |
| | n=591 | | | | n=2502 | | | |

As the GSS did not include the Sustainability Attitudes Scale, Animal Attitudes Scale, or Assessment of Sustainability Knowledge, I could not compare the samples for the sustainability

[10] In the Qualtrics sample, location is self-reported, whereas in the GSS sample, it is based on belt codes. To compare the samples, I recoded the GSS location variable, "srcbelt," so that the values "12 largest SMSAs," "SMSAs 13–100," "suburb, 12 largest," and "other urban" are "urban" and "suburb, 13–100" and "other rural" are "rural." While the comparison is not exact, it is useful.

[11] In the Qualtrics sample, income is ratio, whereas in the GSS sample, it is ordinal. To compare the samples, I recoded the GSS income variable, "income16," so that the value 1 is $1000, 2 is $2,000, 3 is $3,500, 4 is $4,500, 5 is $5,500, 6 is $6,500, 7 is $7,500, 8 is $9,000, 9 is $11,250, 10 is $13,750, 11 is $16,250, 12 is $18,750, 13 is $21,250, 14 is $23,750, 15 is $27,500, 16 is $32,500, 17 is $37,500, 18 is $45,000, 19 is $55,000, 20 is $67,500, 21 is $82,500, 22 is $100,000, 23 is $120,000, 24 is $140,000, 25 is $160,000, and 26 is $170,000. While the comparison is not exact, it is useful.

[12] In the Qualtrics sample, education is ordinal, whereas in the GSS sample, it is ratio. To compare the samples, I recoded the GSS education variable, "educ," so that the values 1–11 are "Did not finish high school," 12 is "High school," 13 and 15 are "Some college," 14 is "Associate's or other 2-year college degree," 16 is "Bachelor's or other 4-year college degree," and 17–20 are "Graduate degree." While the comparison is not exact, it is useful.

attitude, animal attitude, or sustainability knowledge variables. In the Qualtrics sample, the sustainability attitude variable had a mean of 4.9/6, standard deviation of 0.78, and range from 1 to 6, which indicates that the average participant had a positive sustainability attitude. The animal attitude variable had a mean of 4.5/7, standard deviation of 1.1, and range from 1 to 7, which indicates that the average participant had a positive animal attitude. The sustainability knowledge variable had a mean of 4.9/12, standard deviation of 2.7, and range from 0 to 12, which indicates that the average participant had a low sustainability knowledge.

**Summary Statistics for Support Variables.** To analyze the extent to which participants supported including human proxy representatives for ecosystems, nonhuman animals, or plants in the decision-making process, I determined summary statistics for the support variables in the Ecosystem, Animals, and Plants groups both together and separately. In all three groups together, the support variable had a mean of 5.0/7, which indicates that the average participant was "Somewhat Supportive" of including human proxy representatives for nonhumans in the decision-making process. In the Ecosystem group separately, which included 215 participants, the support variable had a mean of 5.1/7, which indicates that the average participant was between "Somewhat Supportive" and "Supportive" of including human proxy representatives for ecosystems in the decision-making process. In the Animals group separately, which included 180 participants, the support variable had a mean of 5.2/7, which indicates that the average participant was between "Somewhat Supportive" and "Supportive" of including human proxy representatives for non-human animals in the decision-making process. In the Plants group separately, which included 196 participants, the support variable had a mean of 4.7/7, which indicates that the average participant was between "Neutral" and "Somewhat Supportive" of including human proxy representatives for plants in the decision-making process. For more detailed summary statistics of the support variables, see Table 3.2.

Table 3.2

*Summary Statistics for Support Variables*

| Variable | Mean | Std. Dev. | Min. | Max. | n |
|---|---|---|---|---|---|
| All | 5.0 | 1.5 | 1 | 7 | 600 |
| Ecosystem | 5.1 | 1.5 | 1 | 7 | 215 |
| Animals | 5.2 | 1.5 | 1 | 7 | 180 |
| Plants | 4.7 | 1.5 | 1 | 7 | 196 |

**Bivariate Regressions.** To analyze the influence of demographic, attitudinal, and educational factors on participants' level of support for including human proxy representatives for ecosystems, nonhuman animals, and plants in the decision-making process, I first performed bivariate regressions of the support variables on the demographic, attitudinal, and educational variables for the Ecosystem, Animals, and Plants groups together and separately. In all three groups together, being liberal ($p<0.001$, $b=0.17$, Adj. $R^2=0.031$), sustainability attitude ($p<0.001$, $b=0.70$, Adj. $R^2=0.13$), animal attitude ($p<0.001$, $b=0.86$, Adj. $R^2=0.073$), and sustainability knowledge ($p<0.001$, $b=0.090$, Adj. $R^2=0.024$) had statistically significant, positive influences on support, which indicates that participants who were more liberal, had more positive sustainability and animal attitudes, and had higher sustainability knowledge tended to be more supportive of including human proxy representatives for nonhumans in the decision-making process. In the Ecosystem group separately, being liberal ($p<0.01$, $b=0.20$, Adj. $R^2=0.048$), sustainability attitude ($p<0.001$, $b=0.84$, Adj. $R^2=0.19$), animal attitude ($p<0.05$, $b=0.22$, Adj. $R^2=0.024$), and sustainability knowledge ($p<0.05$, $b=0.10$, Adj. $R^2=0.024$) had statistically significant, positive influences on support, which indicates that participants who were more liberal, had more positive sustainability and animal attitudes, and had higher sustainability knowledge tended to be more supportive of including human proxy representatives for ecosystems in the decision-making process. In the Animals group separately, sustainability attitude ($p<0.001$, $b=0.65$, Adj. $R^2=0.11$) and animal attitude ($p<0.05$, $b=0.53$, Adj. $R^2=0.14$) had statistically significant, positive influences on support, which indicates

that participants who had more positive sustainability and animal attitudes tended to be more supportive of including human proxy representatives for nonhuman animals in the decision-making process. In the Plants group separately, being liberal ($p<0.01$, $b=0.22$, Adj. $R^2=0.045$), sustainability attitude ($p<0.001$, $b=0.55$, Adj. $R^2=0.081$), animal attitude ($p<0.001$, $b=0.37$, Adj. $R^2=0.073$), and sustainability knowledge ($p<0.01$, $b=0.11$, Adj. $R^2=0.032$) had statistically significant, positive influences on support, which indicates that participants who were more liberal, had more positive sustainability and animal attitudes, and had higher sustainability knowledge tended to be more supportive of including human proxy representatives for plants in the decision-making process. No other demographic, attitudinal, or educational variable had significant influences on support in any of the groups.

**T-tests.** To analyze the influence of seeing a photograph on participants' level of support for including human proxy representatives for ecosystems, nonhuman animals, and plants in the decision-making process, I first performed one-tailed, two-sample t-tests assuming equal variances of the mean level of support as a function of seeing a photograph for the Ecosystem, Animals, and Plants groups together and separately. For each test, the null hypothesis was that the difference between the means for the treatment and control subgroups was equal to zero and the alternative hypothesis was that the difference was greater than zero with an *a priori* significance level of 0.05. In the Animals group separately, the difference between the mean levels of support was significantly greater than zero, so I rejected the null hypothesis. In other words, participants who saw a photograph of deer tended to be more supportive of including a human proxy representative for nonhuman animals in the decision-making process. In all three groups together and the Ecosystem and Plants groups separately, the difference between the mean levels of support was not significantly

greater than zero, so I failed to reject the null hypothesis.[13] In other words, participants who saw photographs of a forest and a plant did not tend to be more supportive of including a human proxy representative for ecosystems or plants, respectively, in the decision-making process. For more details of the t-tests of level of support as a function of seeing a photograph, see Table 3.3.

Table 3.3

*T-tests of Level of Support as a Function of Seeing Photograph*

| | All Groups | | Ecosystem Group | | Animals Group | | Plants Group | |
|---|---|---|---|---|---|---|---|---|
| | Photograph? | | Photograph? | | Photograph? | | Photograph? | |
| | Yes | No | Yes | No | Yes | No | Yes | No |
| n | 306 | 294 | 114 | 101 | 88 | 92 | 99 | 97 |
| Mean | 5.07 | 4.93 | 5.25 | 4.96 | 5.40 | 5.01 | 4.57 | 4.79 |
| Std. Dev. | 1.45 | 1.57 | 1.46 | 1.58 | 1.34 | 1.54 | 1.41 | 1.61 |
| | $p>0.05$; $t=-1.13$ | | $p>0.05$; $t=-1.42$ | | $p<0.05$; $t=-1.79$ | | $p>0.05$; $t=1.06$ | |

**Multiple Regressions.** To further analyze the influence of the demographic, attitudinal, and educational factors and of seeing a photograph on participants' level of support for including human proxy representatives for ecosystems, nonhuman animals, and plants in the decision-making process, I performed multiple regressions of the support variables on the demographic, attitudinal, educational, and photograph variables for the Ecosystem, Animals, and Plants groups together and separately. In all three groups together, being white ($p<0.05$, $b=0.30$), sustainability attitude ($p<0.001$, $b=0.49$), and animal attitude ($p<0.01$, $b=0.20$) had a significantly significant, positive influence on support, holding constant all other variables. In other words, participants who were white tended to be 0.30 points more supportive; for every one point increase in sustainability attitude, participants tended to be 0.49 points more supportive; and for every one point increase in animal attitude, participants tended to be 0.20 points more supportive of including a human proxy

[13] In the Ecosystem group, the difference between the mean levels of support would have been significantly greater than zero had the *a priori* significance level been 0.10. Given the relatively small sample size, this finding may warrant further investigation.

representative for nonhumans in the decision-making process, holding constant all other variables. The influence being white became significant when the other variables were controlled for, which suggests that other variables may have masked its effects. The influences of being liberal and sustainability knowledge were no longer significant, which suggests that other variables may have mediated their effects. Overall, the model explained about 15% of variance in participants' level of support (Adj. $R^2$=0.15).

In the Ecosystem group separately, sustainability attitude ($p<0.001$, b=0.76) had a statistically significant, positive influence on support, holding constant all other variables. In other words, for every one point increase in sustainability attitude, participants tended to be 0.76 points more supportive of including a human proxy representative for ecosystems in the decision-making process, holding constant all other variables. The influences of being liberal, animal attitude, and sustainability knowledge were no longer significant when the other variables were controlled for, which suggests that sustainability attitude may mediate their effects. Overall, the model explained about 18 percent of variance in participants' level of support (Adj. $R^2$=0.18).

In the Animals group separately, sustainability attitude ($p<0.05$, b=0.39), animal attitude ($p<0.001$, b=0.41), and seeing photograph ($p<0.05$, b=0.43) had statistically significant, positive influences on support, holding constant all other variables. In other words, for every one point increase in sustainability attitude, participants tended to be 0.39 points more supportive; for every one point increase in animal attitude, participants tended to be 0.41 points more supportive; and participants who saw a photograph of a deer tended to be 0.39 points more supportive of including a human proxy representative for nonhuman animals in the decision-making process, holding constant all other variables. Overall, the model explained about 19 percent of variance in participants' level of support (Adj. $R^2$=0.19).

In the Plants group separately, animal attitude ($p<0.05$, $b=0.27$) had a statistically significant, positive influence on support, holding constant all other variables. In other words, for every one point increase in animal attitude, participants tended to be 0.27 points more supportive of including a human proxy representative for plants in the decision-making process, holding constant all other variables. The influences of being liberal, sustainability attitude, and sustainability knowledge were no longer significant when the other variables were controlled for, which suggests that animal attitude may be a mediating variable. Overall, the model explained about 12 percent of variance in participants' level of support (Adj. $R^2=0.12$). The highest VIF in any regression was 2.20, which indicates that multicollinearity was not an issue. For more details of the multiple regressions of level of support on the demographic, attitudinal, educational, and photograph variables, see Table 3.4.

Table 3.4

*Multiple Regressions of Level for Support on Demographic, Attitudinal, Educational, and Photograph Variables*

| | All Groups | | Ecosystem Group | | Animals Group | | Plants Group | |
|---|---|---|---|---|---|---|---|---|
| Variable | b | t | b | t | b | t | b | t |
| Age | -0.0031 | -0.76 | -0.0021 | -0.31 | -0.0035 | -0.47 | -0.0058 | -0.81 |
| Gender (Male=1) | 0.085 | 0.71 | 0.13 | 0.67 | -0.15 | -0.69 | 0.16 | 0.74 |
| Race (White=1) | 0.30* | 2.2 | 0.24 | 1.1 | 0.43 | 1.8 | 0.32 | 1.3 |
| Religion (Christian=1) | 0.18 | 1.5 | -0.13 | -0.64 | 0.39 | 1.8 | 0.32 | 1.4 |
| Political Ideology (Liberal=7) | 0.058 | 1.5 | 0.081 | 1.3 | -0.018 | -0.27 | 0.11 | 1.4 |
| Location (Rural=1) | 0.063 | 0.44 | -0.13 | -0.54 | -0.044 | -0.17 | 0.27 | 1.0 |
| Income (in $1000s) | 0.00 | 0.74 | 0.00 | 0.090 | 0.00 | 0.076 | 0.00 | 0.81 |
| SAS | 0.49*** | 5.6 | 0.76*** | 5.2 | 0.39* | 2.5 | 0.30 | 1.8 |
| AAS | 0.20** | 3.4 | -0.036 | -0.37 | 0.41*** | 4.0 | 0.27* | 2.5 |
| Some High School | 0.0088 | 0.04 | -0.40 | -1.1 | 0.29 | 0.63 | 0.42 | 1.1 |
| Some College | 0.33 | 1.9 | 0.18 | 0.60 | 0.22 | 0.80 | 0.47 | 1.5 |
| Associates | -0.10 | -0.34 | 0.16 | 0.33 | -0.30 | -0.55 | -0.12 | -0.25 |
| Bachelors | 0.027 | 0.13 | -0.055 | -0.16 | 0.084 | 0.24 | -0.08 | -0.22 |
| Graduate | 0.31 | 1.4 | 0.21 | 0.54 | 0.33 | 0.45 | 0.29 | 0.76 |
| ASK | 0.019 | 0.79 | 0.017 | 0.42 | 0.02 | -0.53 | 0.048 | 1.05 |
| Photograph | 0.13 | 1.1 | 0.14 | 0.71 | 0.43* | 2.1 | -0.12 | -0.56 |
| Intercept | 0.99 | 2.1 | 1.1 | 1.4 | 0.84 | 0.96 | 1.00 | 1.17 |
| | Adj. $R^2$=0.15; $F_{(16,574)}$=7.7 | | Adj. $R^2$=0.18; $F_{(16,198)}$=3.9 | | Adj. $R^2$=0.19; $F_{(16,163)}$=3.7 | | Adj. $R^2$=0.12; $F_{(16,179)}$=2.6 | |
| | n=600 | | n=215 | | n=180 | | n=196 | |
| *** p<0.001, ** p<0.01, * p<0.05 | | | | | | | | |

**Qualitative Analysis**

**Identifying Themes.** To analyze how participants explained their level of support for including human proxy representatives for ecosystems, nonhuman animals, or plants in the decision-making process, I first used inductive coding to organize their explanations into categories, and then used pattern coding to organize the categories into more general themes. As I coded the explanations, I only considered categories and themes that could include explanations regardless of

participants' level of support. For example, I would not have considered the theme "Intrinsic value of nonhumans" because that theme could not include the explanations of participants who were opposed to including nonhumans; however, I would have considered the theme "Value" because that theme could include the explanations of participants who were supportive of, opposed to, and neutral about including nonhumans. I only considered inclusive categories and themes because my aim was to analyze participants' explanations of their level of support, not the levels themselves. Knowing that some participants who were supportive of including nonhumans explained their support with the concept of intrinsic value would be useful, but the knowledge that participants who were supportive of, opposed to, and neutral about including nonhumans would be more useful.

Ultimately, I identified five themes: Inclusion, Efficiency, Advocacy, Knowledge, and Unclear. The first four themes are best described by a combination of two dichotomies: one between explanations that focused on the decision-making process and explanations that focused on the decisions themselves, and the other between explanations that focused on morality and explanations that focused on practicality. When combined, these two dichotomies result in four themes: combining process and morality results in Inclusion (17% of explanations, or 99 explanations); combining process and practicality results in Efficiency (10% of explanations, or 61 explanations); combining decision and morality results in Advocacy (26% of explanations, or 152 explanations); and combining decision and practicality results in Knowledge (18% of explanations, or 109 explanations). To be clear, these themes are ideal types, and some participants' explanations either fit multiple themes or did not fit any theme. When explanations fit multiple themes, I divided them into each theme they fit. When explanations did not fit any theme, I included them in the fifth theme, Unclear (29% of explanations, or 171 explanations). For a graphical representation of the themes and their distribution, see Table 3.5.

| Table 3.5<br><br>*Themes from Qualitative Analysis of Participants' Explanations* | | |
|---|---|---|
| | Morality | Practicality |
| Process | Inclusion<br>(17%, n=99) | Efficiency<br>(10%, n=61) |
| Decision | Advocacy (26%, n=152) | Knowledge (18%, n=109) |
| Unclear (29%, n=171) | | |

**Inclusion.** Explanations that fit the Inclusion theme addressed the moral effects of including representatives for nonhumans on the process. Of these explanations, most emphasized the moral imperative to include representatives for nonhumans in the process. For example, a participant in the Ecosystem group offered the following explanation for their support: "The forest ecosystem needs to be represented." Similarly, a participant in the Animals group stated, "I believe that animals need a voice as well as people," and a participant in the Plants group explained, "Plants can't speak for themselves." However, some explanations emphasized the moral need to limit representation to humans. For instance, one participant in the Ecosystem group stated, "I think we need people to speak for us," suggesting that including a representative for the ecosystem would weaken representation for humans.

In the Ecosystem, Animals, and Plants groups together, 17% (99/591) of explanations fit the Inclusion theme. Of these 99 explanations, 88% (87.5/99) were from participants who supported including representatives for nonhumans, 7% (6.5/99) were from participants who were neutral to it, and 5% (5/99) were from participants who opposed it. In the Ecosystem group separately, 15% (32.5/215) of explanations fit the Inclusion theme. Of these 32.5 explanations, 83% (27/32.5) were from participants who supported including representatives for the ecosystem, 9% (3/32.5) were from participants who were neutral to it, and 9% (3/32.5) were from participants who opposed it. In the Animals group separately, 26% (46/180) of explanations fit the Inclusion theme. Of these 46 explanations, 92% (42.5/46) were from participants who supported including representatives for

nonhuman animals, 5% (2.5/46) were from participants who were neutral to it, and 2% (1/46) were from participants who opposed it. In the Plants group separately, 10% (20.5/196) of explanations fit the Inclusion theme. Of these 20.5 explanations, 88% (18/20.5) were from participants who supported including representatives for plants, 7% (1.5/20.5) were from participants who were neutral to it, and 5% (1/20.5) were from participants who opposed it. For a graphical representation of the Inclusion theme, see Table 3.6.

Table 3.6

*Distribution of Inclusion Theme by Group and Level of Support*

| | Support | Neutral | Oppose | Total |
|---|---|---|---|---|
| Ecosystem Group | 15% (32.5) | 83% (27) | 9% (3) | 9% (3) |
| Animals Group | 92% (42.5) | 5% (2.5) | 2% (1) | 26% (46) |
| Plants Group | 88% (18) | 7% (1.5) | 5% (1) | 10% (20.5) |
| All Groups | 88% (87.5) | 7% (6.5) | 5% (5) | 17% (99) |

**Efficiency.** Explanations that fit the Efficiency theme addressed the practical effects of including representatives for nonhumans on the process. Of these explanations, most emphasized the practical challenges of including representatives for nonhumans to the process's efficiency. For example, a participant in the Plants group offered the following explanation for their opposition: "With more people added to the mix, it would only confuse the issue and ultimately take more time to come to a conclusion." Likewise, a participant in the Animals group wrote, "The more people involved, the less likely a reasonable outcome," and a participant in the Ecosystem group explained, "I think there are enough on both sides." However, some explanations emphasized the practical benefits of including representatives for nonhumans on the process's efficiency. For instance, one participant in the Ecosystem group wrote, "I believe a fresh start with new perspectives we move this matter forward," implying that including a representative for the ecosystem would actually speed up the decision-making process.

In the Ecosystem, Animals, and Plants groups together, 10% (61/591) of explanations fit the Efficiency theme. Of these 61 explanations, 5% (3/61) were from participants who supported including representatives for nonhumans, 42% (25.5/61) were from participants who were neutral to it, and 53% (32.5/61) were from participants who opposed it. In the Ecosystem group separately, 9% (19.5/215) of explanations fit the Efficiency theme. Of these 19.5 explanations, 8% (1.5/19.5) were from participants who supported including representatives for the ecosystem, 26% (5/19.5) were from participants who were neutral to it, and 67% (13/19.5) were from participants who opposed it. In the Animals group separately, 7% (12/180) of explanations fit the Efficiency theme. Of these 12 explanations, 0% (0/12) were from participants who supported including representatives for nonhuman animals, 42% (5/12) were from participants who were neutral to it, and 58% (7/12) were from participants who opposed it. In the Plants group separately, 15% (29.5/196) of explanations fit the Efficiency theme. Of these 29.5 explanations, 5% (1.5/29.5) were from participants who supported including representatives for plants, 53% (15.5/29.5) were from participants who were neutral to it, and 42% (12.5/29.5) were from participants who opposed it. For a graphical representation of the Efficiency theme, see Table 3.7.

Table 3.7

*Distribution of Efficiency Theme by Group and Level of Support*

| | Support | Neutral | Oppose | Total |
|---|---|---|---|---|
| Ecosystem Group | 8% (1.5) | 26% (5) | 67% (13) | 9% (19.5) |
| Animals Group | 0% (0) | 42% (5) | 58% (7) | 7% (12) |
| Plants Group | 5% (1.5) | 53% (15.5) | 42% (12.5) | 15% (29.5) |
| All Groups | 5% (3) | 42% (25.5) | 53% (32.5) | 10% (61) |

**Advocacy.** Explanations that fit the Advocacy theme addressed the moral effects of including representatives for nonhumans on the decisions. Of these explanations, most emphasized the moral imperative to advocate for nonhumans. For example, a participant in the Ecosystem

group offered the following explanation for their support: "I want to protect the forests." Similarly, a participant in the Animals group stated, "Destroying animals' habitat affects the ecosystem," and a participant in the Plants group explained, "Plants are important to our health." However, some explanations emphasized the lack of need to advocate for nonhumans. For instance, one participant in the Animals group stated, "Too much emphasis in this area is put on saving animals that are dangerous like wolves and cougars," suggesting that including a representative for nonhuman animals could harm humans.

In the Ecosystem, Animals, and Plants groups together, 26% (152/591) of explanations fit the Advocacy theme. Of these 152 explanations, 84% (127/152) were from participants who supported including representatives for nonhumans, 8% (12/152) were from participants who were neutral to it, and 9% (13/152) were from participants who opposed it. In the Ecosystem group separately, 21% (45/215) of explanations fit the Advocacy theme. Of these 45 explanations, 89% (40/45) were from participants who supported including representatives for the ecosystem, 4% (2/45) were from participants who were neutral to it, and 7% (3/45) were from participants who opposed it. In the Animals group separately, 34% (61/180) of explanations fit the Advocacy theme. Of these 61 explanations, 85% (52/61) were from participants who supported including representatives for nonhuman animals, 7% (4/61) were from participants who were neutral to it, and 8% (5/61) were from participants who opposed it. In the Plants group separately, 23% (46/196) of explanations fit the Advocacy theme. Of these 46 explanations, 76% (35/46) were from participants who supported including representatives for plants, 13% (6/46) were from participants who were neutral to it, and 11% (5/46) were from participants who opposed it. For a graphical representation of the Advocacy theme, see Table 3.8.

Table 3.8

*Distribution of Advocacy Theme by Group and Level of Support*

| | Support | Neutral | Oppose | Total |
|---|---|---|---|---|
| Ecosystem Group | 89% (40) | 4% (2) | 7% (3) | 21% (45) |
| Animals Group | 85% (52) | 7% (4) | 8% (5) | 34% (61) |
| Plants Group | 76% (35) | 13% (6) | 11% (5) | 23% (46) |
| All Groups | 84% (127) | 8% (12) | 9% (13) | 26% (152) |

**Knowledge.** Explanations that fit the Knowledge theme addressed the practical impact of including representatives for nonhumans on the decisions. Of these explanations, most emphasized the practical benefits of gaining knowledge from nonhumans. For example, a participant in the Ecosystem group offered the following explanation for their support: "The ecosystem is an important and often ignored topic of discussion when land is developed. I would like to obtain information concerning the effect on the ecosystem caused by the development." Likewise, a participant in the Animals group wrote, "Need to understand what impact it would have on the animals," and a participant in the Plants group explained, "They know more than I do." However, some explanations emphasized the practical challenges of gaining knowledge from nonhumans. For instance, a participant in the Animals group wrote, "Animals can't speak for themselves, yet individuals have agendas and biases."

In the Ecosystem, Animals, and Plants groups together, 18% (109/591) of explanations fit the Knowledge theme. Of these 109 explanations, 83% (90.5/109) were from participants who supported including representatives for nonhumans, 10% (11/109) were from participants who were neutral to it, and 7% (7.5/109) were from participants who opposed it. In the Ecosystem group separately, 25% (53/215) of explanations fit the Knowledge theme. Of these 53 explanations, 90% (47.5/53) were from participants who supported including representatives for the ecosystem, 3% (1.5/53) were from participants who were neutral to it, and 8% (4/53) were from participants who

opposed it. In the Animals group separately, 11% (19/180) of explanations fit the Knowledge theme. Of these 19 explanations, 82% (15.5/19) were from participants who supported including representatives for nonhuman animals, 18% (3.5/19) were from participants who were neutral to it, and 0% (0/19) were from participants who opposed it. In the Plants group separately, 19% (37/196) of explanations fit the Knowledge theme. Of these 37 explanations, 74% (27.5/37) were from participants who supported including representatives for plants, 16% (6/37) were from participants who were neutral to it, and 9% (3.5/37) were from participants who opposed it. For a graphical representation of the Knowledge theme, see Table 3.9.

Table 3.9

*Distribution of Knowledge Theme by Group and Level of Support*

| | Support | Neutral | Oppose | Total |
|---|---|---|---|---|
| Ecosystem Group | 90% (47.5) | 3% (1.5) | 8% (4) | 25% (53) |
| Animals Group | 82% (15.5) | 18% (3.5) | 0% (0) | 11% (19) |
| Plants Group | 74% (27.5) | 16% (6) | 9% (3.5) | 19% (37) |
| All Groups | 83% (90.5) | 10% (11) | 7% (7.5) | 18% (109) |

**Unclear.** Explanations that fit the Unclear theme did not offer enough information about participants' level of support for including representatives for nonhumans to fit the Inclusion, Efficiency, Advocacy, or Knowledge themes or a new theme. Of these explanations, most were very undetailed. For example, several participants in each group offered the explanations, "Because," "Not sure," and "Don't care." Notably, some participants offered more detailed explanations that were critical of the survey questions. For instance, one participant in the Plants group stated, "You guys are crazy."

In the Ecosystem, Animals, and Plants groups together, 29% (171/591) of explanations fit the Unclear theme. Of these 171 explanations, 26% (44/171) were from participants who supported including representatives for nonhumans, 65% (112/171) were from participants who were neutral

to it, and 9% (15/171) were from participants who opposed it. In the Ecosystem group separately, 30% (65/215) of explanations fit the Unclear theme. Of these 65 explanations, 29% (19/65) were from participants who supported including representatives for the ecosystem, 65% (42/65) were from participants who were neutral to it, and 6% (4/65) were from participants who opposed it. In the Animals group separately, 24% (43/180) of explanations fit the Unclear theme. Of these 43 explanations, 28% (12/43) were from participants who supported including representatives for nonhuman animals, 63% (27/43) were from participants who were neutral to it, and 9% (4/43) were from participants who opposed it. In the Plants group separately, 32% (63/196) of explanations fit the Unclear theme. Of these 63 explanations, 21% (13/63) were from participants who supported including representatives for plants, 68% (43/63) were from participants who were neutral to it, and 11% (7/63) were from participants who opposed it. For a graphical representation of the Unclear theme, see Table 3.10.

Table 3.10

*Distribution of Unclear Theme by Group and Level of Support*

| | Support | Neutral | Oppose | Total |
|---|---|---|---|---|
| Ecosystem Group | 29% (19) | 65% (42) | 6% (4) | 30% (65) |
| Animals Group | 28% (12) | 63% (27) | 9% (4) | 24% (43) |
| Plants Group | 21% (13) | 68% (43) | 11% (7) | 32% (63) |
| All Groups | 26% (44) | 65% (112) | 9% (15) | 29% (171) |

## Discussion

### Levels of Support for Including Representatives for Nonhuman Stakeholders

Returning to the hypotheses, the results partially support Hypothesis 1. The summary statistics for the support variables indicate that adults tend to have moderate levels of support for including representatives for nonhuman stakeholders. Specifically, the support variable's mean in the Ecosystem, Animals, and Plants groups together was 5.0/7, which means that participants tended to

be "Somewhat Supportive" of including representatives for nonhuman stakeholders. However, the summary statistics also indicate that adults tend to have higher levels of support for ecosystems and nonhuman animals than for plants. The support variable's mean in the Animals group was the highest at 5.2/7, followed by the support variable's mean in the Ecosystem group at 5.1/7, which means that participants tended to be between "Somewhat Supportive" and "Supportive" of including representatives for nonhuman animals and ecosystems. In comparison, the support variable's mean in the Plants group was 4.7/7, which means that participants tended to be between "Neutral" and "Somewhat Supportive" of including representatives for plants.

These findings are both surprising and promising, as they suggest that the US American public will likely support, or at least be neutral toward, multispecies communicative democracy when it is put into practice as a method of environmental decision making. They are also noteworthy in that they suggest that adults will more likely support it if it is framed as a method that includes representatives for ecosystems or animals instead of plants, even if representatives for ecosystems also represent the plants that inhabit them. Indeed, some participants' explanations for their level of support suggest that they interpreted plants and ecosystems as interchangeable, including one participant in the Plants group who explained that they supported including a representative for plants "Because they have first hand knowledge of the ecosystem."

**Factors that Influence Levels of Support**

**Sustainability and Animal Attitudes.** The results partially support Hypothesis 3. The regression analyses indicate that attitudinal factors influence adults' levels of support for including representatives for nonhuman stakeholders, but that their influence depends upon whether the stakeholders are ecosystems, nonhuman animals, or plants. Both the sustainability attitudes and animal attitudes variables had significant, positive influences on the support variables in all of the bivariate regressions; however, the sustainability attitudes variable only had a significant, positive

influence on the support variables in the Ecosystem, Animals, and Plants groups together and the Ecosystem group separately, and the animal attitudes variable only had a significant, positive influence on the support variables in the Ecosystem, Animals, and Plants groups together and the Animals and Plants groups separately.

These findings are not completely surprising, as it makes sense that people with more positive attitudes toward sustainability and animals would also be supportive of an approach to decision making that includes ecosystems and nonhuman animals in the decision-making process. Nonetheless, they are promising, as they suggest that changing people's attitudes, though challenging, is an effective strategy for increasing the US American public's support for multispecies communicative democracy. They are also important in that they suggest that there is a substantial difference between the specific nonhuman stakeholders for which people with positive sustainability attitudes and positive animal attitudes would support including representatives. People with positive sustainability attitudes are more likely to support including representatives for ecosystems and nonhuman animals, while people with positive animal attitudes are more likely to support including representatives for nonhuman animals and plants. Moreover, some participants' explanations for their level of support further suggest that people with positive sustainability attitudes may have thought of animals as species, whereas people with positive animal attitudes may have thought of animals as individuals. For example, a participant in the Animals group with a strong, positive sustainability attitude explained that "Destroying animals habitats effects the Eco system," while a participant with a strong, positive animal attitude explained that "Everyone or thing living is living for purpose and has a voice."

**Seeing a Photograph of a Nonhuman Stakeholder.** The findings also partially support Hypothesis 5. The t-tests and multiple regression analyses indicate that seeing a photograph of a nonhuman stakeholder does have a significant, positive influence on adults' levels of support for

including representatives for that stakeholder if the stakeholder is a nonhuman animal, but not if the stakeholder is an ecosystem or plant. The photograph variable had a significant, positive influence on the support variable in both the t-test and the multiple regression in the Animals group separately, but it did not have a significant influence in any of the other t-tests or multiple regressions.

These findings are especially noteworthy, as they not only support the above literature on the influence of animal portraiture on people's animal attitudes, but also suggest that showing people a photograph of a nonhuman animal before or while they participate in a multispecies democratic deliberation may be an effective strategy for increasing their support for the deliberation. As stated above, changing people's attitudes is challenging, and it would only be effective as a long-term strategy (for example, see Heberlein, 2012). However, humans must make decisions about environmental problems in the short term. In the Animals group, participants who saw a photograph of a deer tended to score 0.43/7 points higher on the support variable. This difference may seem small, but it means that an act as simple as displaying a photograph of a nonhuman animal during a deliberation could make a participant who was somewhat opposed to including a representative for a nonhuman animal in the decision-making process neutral to it, and a citizen who was neutral to it somewhat supportive of it.

**Factors that Do Not Influence Levels of Support**

**Demographics and Education.** The results do not support Hypothesis 2. The regression analyses indicate that demographic factors do not influence adults' levels of support for including representatives for nonhuman stakeholders, with the possible exception of race. Neither the age, gender, religion, location, nor income variables had significant influences on the support variables in any regression. The political ideology variable did have a significant, positive influence on the support variables in the bivariate regressions for the Ecosystem, Animals, and Plants groups

together and the Ecosystem and Plants groups separately, but the positive influence of being liberal disappeared in the multiple regressions. The race variable did not have a significant influence on the support variable in any of the bivariate regressions or the multiple regressions for the Ecosystem, Animals, and Plants groups separately, but being white did have a significant, positive, but weak influence on the support variable in the multiple regression for all three groups together. Its influence may have appeared in this regression because of the larger sample size.

The results do not support Hypothesis 4, either. The regression analyses indicate that educational factors do not influence adults' levels of support for including representatives for nonhuman stakeholders. The sustainability knowledge variable did have a significant, positive influence on the support variables in the bivariate regressions for the Ecosystem, Animals, and Plants groups together and the Ecosystem and Plants groups separately, but the positive influence of knowing about sustainability disappeared in the multiple regressions.

The finding that demographic and educational factors do not influence the US American public's support for multispecies communicative democracy is somewhat misleading, as the regression analyses do indicate that at least the influences of political ideology and sustainability knowledge are mediated by sustainability and animal attitudes. Indeed, a multiple regression analysis of the sustainability attitudes variable on the demographic, animal attitudes, educational, and photograph variables indicates that being Christian, being liberal, having a positive animal attitude, and knowing about sustainability all have significant, positive influences on sustainability attitudes in the Ecosystem, Animals, and Plants groups together.[14] In other words, being Christian, being liberal, having positive animal attitudes, and knowing about sustainability all make people more likely to have positive sustainability attitudes, which makes them more likely to support including

[14] The time order between the sustainability attitudes and sustainability knowledge variables is unclear, and it is possible that sustainability knowledge influences sustainability attitudes.

representatives for nonhuman stakeholders. Similarly, being female, being liberal, and having positive sustainability attitude all have significant, positive influences on animal attitudes in the three groups together. In other words, being female, being liberal, and having positive sustainability attitudes make people more likely to have positive animal attitudes, which makes them more likely to support including representatives for nonhuman stakeholders.

Nonetheless, these findings are promising and important, as they suggest that demographic and educational factors—most of which are difficult or impossible to change—are not likely to directly influence the US American public's support for multispecies communicative democracy. That is, all people, regardless of age, gender, religion, location, income, education level, or sustainability knowledge, have the potential to support the method, even though some people may be more likely to support it. The finding that sustainability knowledge does not directly influence people's support for including representatives for nonhuman stakeholders is particularly noteworthy in that it suggests that teaching people factual information about sustainability may not be the most effective strategy for increasing the US American public's support for multispecies communicative democracy. The finding that race may weakly influence adults' level of support is also noteworthy, and it warrants further investigation.

**Explanations of Levels of Support**

The results of the qualitative analysis not only nuance the results of the quantitative analysis, but also provide additional insight into the factors influencing US American adult's levels of support for including representatives for nonhuman stakeholders. In general, participants tended to explain their levels of support in terms of inclusion, efficiency, advocacy, or knowledge. More specifically, participants who focused on inclusion, advocacy, and knowledge tended to support including representatives for nonhuman stakeholders, whereas participants who focused on efficiency tended to oppose including representatives for nonhuman stakeholders. Moreover, most participants who

focused on inclusion tended to be in the Animals group, while participants who focused on advocacy, knowledge, and efficiency were evenly distributed among groups.

These findings are noteworthy, as they suggest that there is a connection between supporting multispecies communicative democracy and being committed to inclusion, advocacy, and knowledge, and between opposing multispecies communicative democracy and being committed to efficiency. Thus, an additional, short-term strategy for increasing citizens' support for multispecies communicative democracy may be to emphasize the importance of inclusion and knowledge and addressing the issue of efficiency. For instance, telling participants in a deliberation that including representatives for nonhumans stakeholders would make the decision-making process more inclusive of the stakeholders affected by the decision and make the decision more knowledge-based may increase their level of support for including the representatives. Similarly, telling participants that including the representatives may make the decision-making process take a longer amount of time, but would also make the decision more effective and therefore make future meetings unnecessary, may also increase participants' level of support for including them.

## Conclusion

In conclusion, this study has found that US American adults are open to multispecies communicative democracy (MCD) through proxy representation, and that having pro-environmental or pro-animal attitudes makes people more supportive of MCD. To an extent, these findings are promising, as they suggest that one way to increase public support for MCD is to improve people's attitudes. However, changing people's attitudes is a very challenging process that is only effective in the long term. Fortunately, the study has also found two other factors that may make people more supportive of MCD. First, people who are committed to inclusion and knowledge in decision-making processes tend to be more supportive of MCD, and people who are committed to efficiency tend to be less supportive of it. Therefore, framing MCD as an inclusive

process that results in knowledge-based decisions may help increase public support for it, as may emphasizing that these knowledge-based decisions may be more sustainable and therefore more efficient over time. Second, seeing a photograph of a nonhuman animal may make people more supportive of including a representative for that animal in the decision-making process. Thus, an action as simple as displaying photographs of the nonhuman animals affected by a democratic deliberation may make decision makers more willing to consider the animals' interests, and possibly also the interests of their ecosystem. Holding deliberations in a natural setting in which decision makers would directly interact with nonhuman stakeholder—such as holding a deliberation about deer management in the deer's habitat—may enhance this effect.

To be sure, the impact of reframing MCD or interacting with nonhuman stakeholders during deliberations would not be nearly as strong as the impact of pro-environmental or pro-animal attitudes. Nonetheless, they are short term efforts that could complement long-term efforts to change people's attitudes. What is more, the literature on deliberative democracy suggests that one way to change people's attitudes toward deliberative democracy is to have them participate in democratic deliberations (Samuelsson, 2016), possibly because deliberations create deliberative norms that in turn influence deliberative attitudes. Therefore, multispecies democratic deliberations may create a feedback loop in which people who participate in them become more supportive of them and thus more willing to participate in future deliberations. In the next chapter, I explore multispecies communicative democratic education and its potential to start such a loop.

# APPENDICES

# Appendix A: Scenarios

Leaders in your community are deciding whether to permit the construction of an industrial complex on a tract of forest. They know that the complex would bring jobs to the community, but also that the forest is popular among community members. A stakeholder group has been formed to discuss the issues. They have been tasked with making the best decision for the interests that they represent.

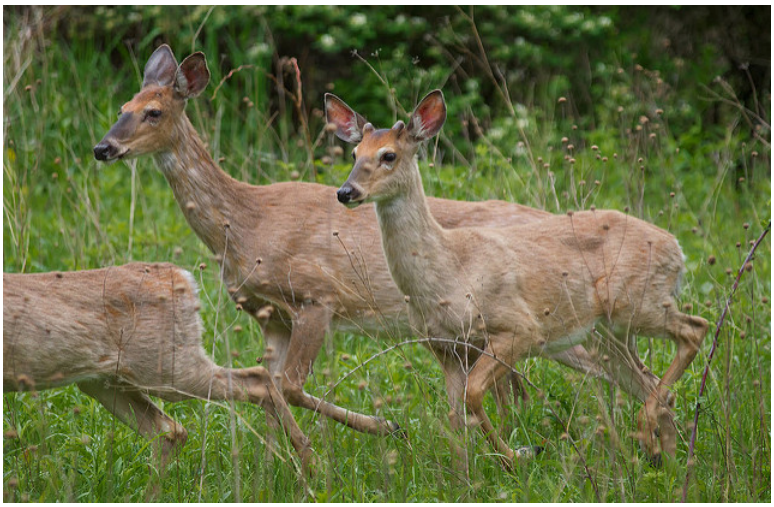
You have been invited to join the stakeholder group. The group's other members include:

- A group chairperson, who will facilitate the group's decision-making process
- A professor of ecology at a local university, who will provide the group with scientific expertise
- A member of the community's chamber of commerce, who will represent the interests of business owners
- A member of a local labor union, who will represent the interests of workers
- A member of a nearby neighborhood homeowners' association, who will represent the interests of people who own homes near the forest
- A member of a local hiking group, who will represent the interests of people who use the forest for recreation

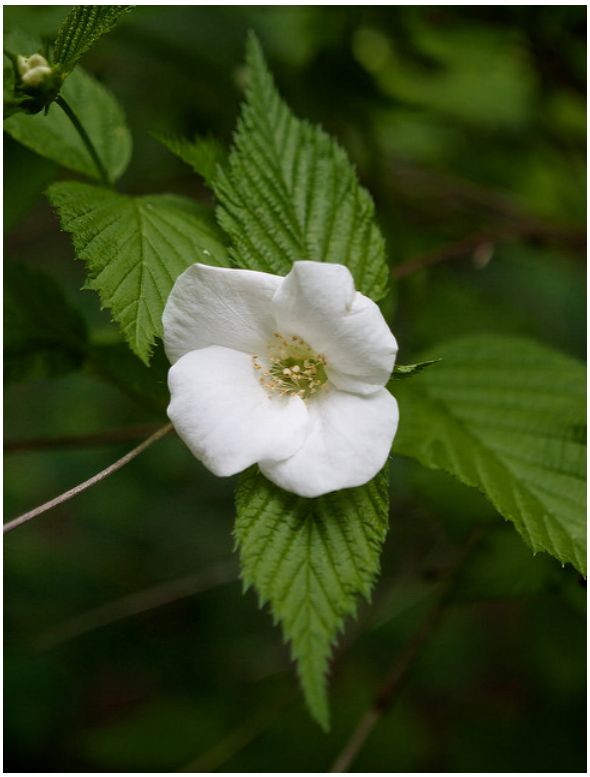
At the stakeholder group's first meeting, the facilitator asks you if you want to include any other individuals in the decision-making process. If you include other individuals, the decision-making process will take longer and be less reflective of the current group members' interests.

Appendix B: Photographs

Photograph of forest
https://www.flickr.com/photos/74418101@N02/14728076653/in/album-72157635002224056/



Photograph of deer
https://www.flickr.com/photos/74418101@N02/17875281862/in/album-72157635002224056/



Photograph of plant
https://www.flickr.com/photos/74418101@N02/17691904199/in/album-72157635002224056/

# WORKS CITED

WORKS CITED


Abram, D. (1997). *The spell of the sensuous.* New York, NY: Vintage Books.

Berenguer, J. (2007). The effect of empathy in proenvironmental attitudes and behaviors. *Environment and Behavior, 39*(2), 269–283. https://doi.org/10.1177/0013916506292937

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality data? *Perspectives on Psychological Science, 6*(1), 3–5. https://doi.org/10.1177/1745691610393980

Chappell, Z. (2012). *Deliberative democracy: A critical introduction.* New York, NY: Palgrave Macmillan.

Clucas, B., McHugh, K., & Caro, T. (2008). Flagship species on covers of US conservation and nature magazines. *Biodiversity and Conservation, 17*(6), 1517–1528. doi: 10.1007/s10531-008-9361-0

Delli Carpini, M., Cook, F. L., & Jacobs, L. R. (2004). Public deliberation, discursive participation, and citizen engagement: A review of the empirical literature. *Annual Review of Political Science, 7,* 315–344. https://doi.org/10.1146/annurev.polisci.7.121003.091630

Dewey, J. (1954). *The public and its problems.* Athens: Ohio University Press.

Dietz, T., & Stern, P. C. (Eds.). (2008). *Public participation in environmental assessment and decision making.* Washington, DC: The National Academies Press.

Dietz, T., & Whitley, C. (2018). Inequality, decisions, and altruism. *Sociology of Development, 4*(3), 282–303. doi: 10.1525/sod.2018.4.3.282

Donaldson, S., & Kymlicka, W. (2011). *Zoopolis: A political theory of animal rights.* Oxford, UK: Oxford University Press.

Driessen, C. (2014). Animal deliberation. In M. Wissenburg & D. Scholsberg (Eds.), *Political animals and animal politics* (pp. 90–104). New York, NY: Palgrave Macmillan.

Dryzek, J. S. (2002). *Deliberative democracy and beyond: Liberals, critics, contestations.* Oxford, UK: Oxford University Press.

Eckersley, R. (1999). The discourse ethic and the problem of representing nature. *Environmental Politics, 8*(2), 24–49. https://doi.org/10.1080/09644019908414460

Eckersley, R. (2004). *The green state: Rethinking democracy and sovereignty.* Cambridge, MA: MIT Press.

Fishkin, J. S. (2011). *When the people speak: Deliberative democracy & public consultation.* Oxford, UK: Oxford University Press.

Grimes, M. F. (2008). The civic benefits of imperfect deliberation. *Journal of Public Deliberation, 4*(1), Article 7.

Gutmann, A., & Thompson, D. (2004). *Why deliberative democracy?* Princeton, NJ: Princeton University Press.

Heberlein, T. A. (2012). *Navigating environmental attitudes.* Oxford, UK: Oxford University Press.

Herzog, H., Grayson, S., & McCord, D. (2015). Brief measures of the Animal Attitudes Scale. *Anthrozöos, 28*(1), 145–152. https://doi.org/10.2752/089279315X14129350721894

Joyner, L., & Koelln, G. (2018, April 8). Parrots on organizational boards. Retrieved from https://www.oneearthconservation.org/single-post/2018/04/04/Parrots-on-Organizational-Boards

Kalof, L., Zammit-Lucia, J., Bell, J., & Granter, G. (2015). Fostering kinship with animals: Animal portraiture in humane education. *Environmental Education Research, 22*(2), 203–228. https://doi.org/10.1080/13504622.2014.999226

Kalof, L, Zammit-Lucia, J., & Kelly, J. R. (2011). The meaning of animal portraiture in a museum setting: Implications for conservation. *Organization & Environment,* 24(2), 150–174. https://doi.org/10.1177/1086026611412081

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior. *Environmental Education Research, 8*(3), 239–260. https://doi.org/10.1080/13504620220145401

Lynn, W. S. (1998). Animals, ethics, and geography. In J. Wolch & J. Emel (Eds.), *Animal geographies: Place, politics, and identity in the nature-culture borderlands* (pp. 280–298). London, UK: Verso.

Martínez-Soto, J., Gonzales-Santos, L., Barrios, F. A., & Montero-López Lena, M. E. (2014). Affective and restorative valences for three environmental categories. *Perceptual & Motor Skills: Perception, 119*(3), 901–923. doi: 10.2466/24.50.PMS.119c29z4

Mayer, F. S., McPherson Frantz, C., Bruehlman-Senecal, E., & Dolliver, K. (2009). Why is nature beneficial? The role of connectedness to nature. *Environment and Behavior, 41*(5), 607–643. https://doi.org/10.1177/0013916508319745

Mumby, H. S., & Plotnik, J. M. (2018). Taking the elephants' perspective: Remembering elephant behavior, cognition, and ecology in human-elephant conflict mitigation. *Frontiers in Ecology and Evolution, 6,* Article 122. https://doi.org/10.3389/fevo.2018.00122

O'Neill, S., & Nicholson-Cole, S. (2009). "Fear won't do it": Promoting positive engagement with climate change through visual and iconic representations. *Science Communication, 30*(3), 355–379. https://doi.org/10.1177/1075547008329201

PTI. (2018, July 5). Uttarakhand HC declares animals to be "legal persons." *The Hindu.* Retrieved from https://www.thehindu.com/news/national/uttarakhand-hc-declares-animals-to-be-legal-persons/article24335973.ece

Ruru, J. (2014). Tuhoe-Crown settlement—Te Urewera Act 2014. *The Maori Law Review, October 2014.* Retrieved from http://maorilawreview.co.nz/2014/10/tuhoe-crown-settlement-te-urewera-act-2014/

Ryfe, D. M. (2005). Does deliberative democracy work? *Annual Review of Political Science, 8,* 49–71. https://doi.org/10.1146/annurev.polisci.8.032904.154633

Samuelsson, M. (2016). Education for deliberative democracy: A typology of classroom discussions. *Democracy and Education, 24*(1), Article 5. doi: 10.1332/030557318X15200933925405

Smith, T. W., Davern, M., Freese, J., & Morgan, S. L. (2019). *General social surveys, 1972-2018* [data file and codebook]. Chicago, IL: National Opinion Research Center. doi:10.3886/ICPSR31521.v1

StataCorp. (2013). *Stata statistical software: Release 13*. College Station, TX: StataCorp LP.

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*(3), 407–424. doi: 10.1111/0022-4537.00175

Young, I. M. (1996). Communication and the other: Beyond deliberative democracy. In S. Benhabib (Ed.), *Democracy and difference: Contesting the boundaries of the political* (pp. 120–135). Princeton, NJ: Princeton University Press.

Young, I. M. (2000). *Inclusion and democracy.* Oxford, UK: Oxford University Press.

Zwickle, A., & Jones, K. (2018). Sustainability knowledge and attitudes—Assessing latent constructs. In W. Leal Filho, R. W. Marans, & J. Callewaert (Eds.), *Handbook of sustainability and social science research* (pp. 435–451). Cham, Switzerland: Springer.

# CHAPTER 4: DEVELOPING, TEACHING, AND ANALYZING A MULTISPECIES COMMUNICATIVE DEMOCRACY CURRICULUM AT A NATURE CENTER

As my assistant took the house sparrow eggs out of the nest box, the mother sparrow who had laid them one week earlier flew in a circle above my students, assistants, and me. I had mixed feelings about freezing the eggs so they would not hatch and returning them to the box so their mother would continue incubating them. On the one hand, the Eastern bluebirds for whom the box had been installed needed artificial cavities in which to nest, whereas the house sparrows who were using the box could nest elsewhere. On the other hand, humans had destroyed the natural cavities in which bluebirds used to nest, and humans had introduced sparrows to the North American ecosystems in which they are now outcompeting other bird species. As my group walked back to the building, I noticed that one of my students was also having mixed feelings. A day earlier, she had represented Eastern bluebirds in our groups' deliberation about managing the nest boxes, during which she had argued that we should not freeze and return sparrow eggs, but rather remove sparrows eggs and nests altogether. Now, however, she reflected:

> I don't like how we just took the eggs from the nest. There's like living things in there and we're just taking them and killing them. It just doesn't seem right. The sparrow who flew out of the nest before we got there, she was watching us do it. I didn't like it. (Sarah[15])

The above vignette describes the result of a decision my group had made by applying the theory of multispecies communicative democracy to the issue of managing the nest boxes at Red Pines Nature Center (RPNC) during the center's summer camp. In the first main chapter, I theorized multispecies communicative democracy. I define multispecies communicative democracy

[15] To protect the anonymity of participants, all names are pseudonyms.

as a theory of deliberative democracy that includes nonhuman stakeholders in deliberations through participation and representation. I also applied multispecies communicative democracy to an imaginative scenario of a city managing a growing deer population. Reflecting upon this thought experiment, I claimed that multispecies imagination may need further development but is nonetheless a promising approach to making decisions about environmental issues. In the second main chapter, I studied US American adults' support for multispecies communicative democracy by proxy representation. I found that they tend to support it, particularly when the nonhuman stakeholders being represented are nonhuman animals and ecosystems, but not plants. I also studied the factors influencing adults' support for multispecies communicative democracy by proxy representation. From this analysis, I concluded that pro-sustainability and pro-animal attitudes tend to have positive influences on adults' support for it; however, I also concluded that education had an indirect, positive influence on their support for multispecies communicative democracy, and that participating in multispecies communicative democratic deliberations may have a direct, positive influence on adults' support for it.

In this chapter, I recount how I worked with educators, students, nonhuman animals, ecosystems, and other co-researchers to develop a multispecies communicative democracy curriculum at RPNC, and I detail what happened when I taught the curriculum at the nature center's summer camp four times. First, I review the literature related to multispecies communicative democratic education. Second, I describe my research plans, including my research problems, the methodologies I adopted, the co-researchers with whom I worked, and the methods I used. Third, I recount how I developed the multispecies communicative democracy curriculum. Fourth, I detail what happened when I taught the curriculum. Fifth, and finally, I discuss my next steps for teaching and researching multispecies communicative democratic education.

Through this process, I aim to make at least three contributions. First, I aim to help RPNC accomplish its mission of connecting people to nature by providing them with an effective environmental decision making curriculum. Second, I aim to contribute to the literature on environmental education by integrating theories and practices of environmental decision making education with theories and practices of deliberative democratic education. Third, I aim to add to the literature on multispecies communicative democracy by putting the theory into practice in an authentic setting.

## Literature Review

In this section, I review the literature on multispecies communicative democratic education. This literature lies at the intersection of two fields: environmental decision making education and deliberative democratic education.

### Environmental Decision Making Education

In general, the field of environmental education aims for students to adopt more pro-environmental behaviors. This aim is rooted in the recognition that people must adopt more pro-environmental behaviors to address environmental issues. Initially, many environmental educators accepted a linear model of pro-environmental behavior, according to which people's environmental knowledge positively influences their environmental attitudes, which positively influence their pro-environmental behaviors (Kollmus & Agyeman, 2002). Following this model, environmental education tended to pursue its aim by focusing on increasing students' environmental knowledge (Kollmuss & Agyeman, 2002). Soon, though, these environmental educators recognized that their students were not adopting more pro-environmental behaviors, and they and other scholars began developing alternatives to the linear model (Kollmuss & Agyeman, 2002). According to one such model, Kollmuss and Agyeman's (2002) model of pro-environmental behavior, "environmental knowledge, values, and attitudes, together with emotional involvement…mak[e] up a complex we

call 'pro-environmental consciousness.' This complex in turn is embedded in broader personal values and shaped by personality traits and other internal as well as external factors" (p. 257). All of these factors influence people's adoption of pro-environmental behaviors (Kollmuss & Agyeman, 2002). According to another model, Dietz, Fitzgerald, and Shwom's (2005) values-beliefs-norms theory,

> values influence our worldview about the environment (general beliefs), which in turn influences our beliefs about the consequences of environmental change on things we value, which in turn influence our perceptions of our ability to reduce threats to things we value. This in turn influences our norms about taking action. (p. 356)

Norms about taking action then influence people's adoption of pro-environmental behaviors (Dietz et al, 2005). Following these and other models, environmental education still tends to focus on students' environmental knowledge, but also focuses on other factors like values, attitudes, emotional involvement, beliefs, and norms to meet its aim (Kollmuss & Agyeman, 2002).

Environmental decision making education is similar to other fields of environmental education in that it aims for students to adopt more pro-environmental behaviors, but distinct from them in that it more specifically aims for students to make decisions that result in pro-environmental behaviors. This aim is rooted in the recognition that many environmental issues are "moiling problems" characterized by factual uncertainty and values disagreement, and which pro-environmental behaviors will most effectively address them is often unclear and contentious (T. Dietz, personal communication, April 11, 2018)[16]; therefore, people must first make effective decisions about pro-environmental behaviors before they can adopt them to address environmental

[16] Balint, Stewart, Desai, and Walters (2011) and other scholars use the term "wicked problems" to describe these issues; however, T. Dietz (personal communication, April 11, 2018) challenges their and other scholars' use of that term, as it inaccurately implies malice.

issues. Different environmental decision making educators believe that different factors influence people's abilities to make these decisions, so different approaches to environmental decision making education have emerged.

**Humane education.** One approach to environmental decision making education is humane education, which Weil (2004) defines as

> a comprehensive field of study that draws connections between all forms of justice…[and] examines what is happening on our planet, from human oppression to animal exploitation to ecological degradation. It explores how we might live with compassion and respect for everyone: not just for our friends, neighbors, and classmates, but for all people; not just for our own dogs and cats, but for all animals; not just for our school and home environments, but also for the Earth itself, our ultimate home. It invites students to envision creative solutions and to take individual action so that together we can bring about a world where kindness, integrity, and wisdom are the guiding principles in all our choices and relationships. (Weil, 2004, p. 4)

The literature on humane education includes descriptive accounts of humane education programs and empirical studies of their outcomes. One of the most comprehensive descriptive accounts is Weil's (2004) The Power and Promise of Humane Education, in which she argues that humane education has four elements: "[p]roviding accurate information"; "[f]ostering the 3 Cs: Curiosity, Creativity, and Critical Thinking"; "[i]nstilling the 3 Rs: Reverence, Respect, and Responsibility"; and "[o]ffering positive choices that benefit oneself, other people, the Earth, and animals" (Weil, 2004, pp. 19–20). To illustrate these elements, she describes numerous humane education lessons, which tend to teach one or more of the elements (Weil, 2004). For example, the lesson "Greatest Impact," in which teachers give students a list of choices like eating an omnivorous or vegan diet and students make the choices, provides accurate information in that teachers tell

students the impacts of each option and offers positive choices in that one of the options has a greater positive impact than the other (Weil, 2004). By combining this lesson and others like it with lessons that foster the 3 Cs and 3 Rs, a teacher could create a humane education program that teaches students to make effective decisions about pro-environmental behaviors.

Empirical studies of humane education programs' outcomes tend to be quantitative and focus on students' knowledge and attitudes. In a comprehensive, but somewhat dated, review of this research, Ascione (1997) found that humane education programs can increase students' knowledge about and improve their attitudes toward nonhuman animals. However, he also noted that these studies' findings were limited to students' short-term knowledge and attitudes and did not address their behaviors (Ascione, 1997). More recently, researchers have replicated and advanced Ascione's (1997) findings. For example, Nicoll, Trifone, & Samuels (2008) found that a program in which teachers brought therapy animals to the classroom improved elementary school students' attitudes toward nonhuman animals, but not their behaviors. Similarly, Arbour, Signal, & Taylor (2009) found that a program in which teachers read humane education literature to elementary school students increased their empathy. In a particularly noteworthy study, Samuels, Meers, and Normando (2016) found that a humane education program increased elementary school students' knowledge about and improved their attitudes toward nonhuman animals and the environment. Moreover, it improved their teacher-reported behaviors toward other people (Samuels et al., 2016). That said, few studies have explored humane education programs' influence on students' long-term knowledge or attitudes, their short- or long-term behaviors, or other factors that influence their environmental decision making. Furthermore, few studies have considered which aspects of these programs have the strongest influence on these factors.

Humane education is a promising approach to environmental decision making education, but humane educators and humane education researchers can strengthen it in at least two ways.

First, they can heed Arbour et al.'s (2009) warning that "there is a potential for the popular use of [humane education programs] to outstrip our understanding of the variables that impact efficacy" (p. 136) by reviewing the existing literature on humane education programs' outcomes and conducting further research on them. More specifically, they can nuance the existing literature's findings by conducting qualitative and action research into which aspects of humane education programs most strongly influence students' knowledge, attitudes, behaviors, and other outcomes, and how they influence these outcomes. An example of such research is Kalof, Zammit-Lucia, Bell, and Granter's (2015) study of the influence of nonhuman animal portraits on college students' attitudes toward nonhuman attitudes. The researchers found that students were more likely to perceive nonhuman animals as individuals and feel a sense of connectedness with them after viewing a collection of nonhuman animal portraits. Second, humane educators and humane education researchers can also strengthen humane education by responding to Castellano, de Luca, and Sorrentino's (2011) call for the further integration of humane education with environmental education. One way they can integrate these two fields is by more explicitly framing humane education as an approach to environmental decision making education.

**Structured decision making education.** Another approach to environmental decision making education is structured decision making education, which teaches students processes for making decisions about pro-environmental behaviors (Edelson, Tarnoff, Schwille, Bruozas, & Switzer, 2006). Like the literature on humane education, the literature on structured decision making education includes descriptive accounts of structured decision making curricula and empirical studies of their outcomes. In one descriptive account, Edelson et al. (2006) present a structured decision making curriculum that has four goals:

> Provide students with a meaningful context for understanding science and scientific practices; Help students learn to establish decision-making criteria and identify the

> consequences of a decision; Provide students with a framework for applying personal values to their understanding of consequences in order to make a decision; [and] Provide teachers with an opportunity to assess students' understandings of science and decision making. (p. 40)

To achieve these goals, the curriculum uses the Stakeholder Consequences Decision Making (SCDM) process, a four-stage process common in environmental policy settings (Edelson et al., 2006). The SCDM process has four stages: "establishing constraints and considerations; identifying consequences; assessing impacts on stakeholders; and weighing impacts on stakeholders" (Edelson et al., 2006, p. 41). Edelson et al. (2006) then describe their experience teaching the curriculum to a group of middle school students. Following the "cognitive apprenticeship approach…of modeling, scaffolding, coaching, and fading" (Edelson et al., 2006, p. 45), they taught the students the SCDM process and had them apply it to a role-playing scenario about building a new school on land inhabited by a population of tortoises. In a similar account, Harris, Notin, and Berkowitz (2016) share a curriculum that aims to "help students understand the complex environmental impacts of human decisions…[and] creatively explore our collective environmental footprint, while also recognizing that there are trade-offs for every decision" (p. 44). To meet its aim, the curriculum uses a role-playing game called Eco-Choices, in which students use reasoning to address environmental issues affecting humans and ecosystems in a fictional county (Harris et al., 2016).

Empirical studies of structured decision making curricula's outcomes tend to be qualitative and focus on students' use of decision making processes. For example, Edelson et al. (2006) studied their curriculum's outcomes and found that it was "accessible and engaging to a broad range of students…and help[ed] prepare students to make the complex decisions that they will be called to make throughout their lives" (Edelson et al., 2006, p. 45). That is, middle school students were capable of learning and using the SCDM process to make decisions about complex environmental

issues. At the same time, the curriculum "offer[ed] students the opportunity to apply their content understanding in context" (Edelson et al., 2006, p. 45). In other words, using the SCDM process made students' learning more authentic and effective. In another study, Papadouris (2012) studied a curriculum that uses a "targeted optimization strategy" (p. 604), also common in environmental policy settings, in which people weigh the strengths and weaknesses of different options before making a decision. Like Edelson et al. (2006), he found that their decision making processes tended to be more rational after learning the strategy than before learning it. Students' learning was also more authentic, and likely more effective (Papadouris, 2012). Again, middle school students were capable of learning and using an authentic strategy to make decisions about complex environmental issues.

Like humane education, structured decision making is a promising approach to environmental decision making education; however, it also warrants further attention. In particular, students' capacity to learn and use authentic processes and strategies to make decisions about complex environmental issues raises the question of which processes structured decision making educators should teach them. For example, the fourth step of the SCDM process is "weighing impacts on stakeholders," in which students decide "whether they believe negative impacts on a particular stakeholder are balanced by positive impacts on them or other stakeholders. This is the stage in the process when students bring in their values and see how different values can lead to different decisions" (Edelson et al., 2006, p. 41). By exposing students to different values but teaching them use their own values to justify decisions, the SCDM curriculum fails to fully address the influence of some values on decisions. Similarly, Papadouris (2012) acknowledges that students will use their own values to justify decisions, but his targeted optimization strategy does not explicitly include critical thinking about values. One way to more explicitly include critical thinking about values in structured decision making education is through a greater focus on deliberation.

**Deliberative Democratic Education**

In general, the field of democratic education aims for students to develop a democratic skills, attitudes, and values. This aim is rooted in the recognition that people must develop these qualities if they are to become democratic citizens. To pursue this aim, democratic educators can create democratic experiences in which students practice democratic citizenship (Dewey, 1944). Different educators have different conceptions of democratic citizenship, though (Westheimer, 2015). According to Westheimer (2015), three such conceptions are personally responsible citizenship, in which a citizen "acts responsibly in his or her own community" (p. 38); participatory citizenship, in which citizens "actively participate in the civic affairs and the social life of the community at local, state, and national levels" (p. 40); and justice-oriented citizenship, in which citizens "are able to examine social, political, and economic structures and explore strategies for change that address root causes of problems" (p. 40). Most democratic educators conceive of democratic citizenship as personally responsible citizenship and therefore create experiences like community service events in which students can participate in personally responsible citizenship (Westheimer, 2015). However, some democratic educators do create experiences like community activism and social justice projects in which students participate in participatory and justice-oriented citizenship (Westheimer, 2015).

Deliberative democratic education is a specific approach to democratic education that aims for students to develop deliberative skills, attitudes, and values. This aim is rooted in the belief that people must develop these qualities if they are to become deliberative democratic citizens (Samuelsson & Bøyum, 2015). To pursue this aim, deliberative democratic educators agree that they should create deliberative experiences, in which "different voices and perspectives can be heard and expressed, and in which the participants listen to and treat each other with respect" (Samuelsson & Bøyum, 2015, p. 79); however, they disagree about which aspects of these experiences to emphasize. For that reason, different approaches to deliberative democratic education have emerged.

**Reason-oriented approaches.** Reason-oriented approaches to deliberative democratic education emphasize the importance of giving reasons in deliberative experiences. For example, Englund (2006) argues that deliberations should have three core characteristics: "different views are confronted with one another and arguments for these different views are given time and space to be articulated and presented" (p. 512); "there is tolerance and respect for the concrete other and participants learn to listen to the other person's argument" (p. 512); and "elements of collective will-formation are present, i.e. an endeavor to reach consensus or at least temporary agreements or to draw attention to differences" (p. 512). Therefore, deliberative democratic educators should create deliberative experiences that meet "the reason-giving requirement, the reflective requirement, and the consensus requirement" (Samuelsson, 2016, p. 3). By presenting arguments for a position, listening to arguments for other positions, and endeavoring to reach an agreement on them, students will develop rational skills, attitudes, and values, like the skill of making and reflecting on rational arguments.

Like reason-oriented approaches to deliberative democracy, reason-oriented approaches to deliberative democratic education can be problematic. By focusing on giving reasons, deliberative democratic educators may privilege participants who are more skilled at making rational arguments over participants who are less skilled at making them, but also affected by an issue (Weasel, 2017). Moreover, by participating in deliberative experiences in which some participants are privileged over others, students may develop exclusive attitudes. To address these possibilities, some deliberative democratic educators have emphasized the importance of including participants in deliberations.

**Inclusion-oriented approaches.** Inclusion-oriented approaches to deliberative democratic education emphasize the importance of including participants in deliberations. For instance, Weasel (2017) agrees that deliberations' characteristics include the reason-giving, reflective, and consensus requirements; however, she adds a fourth characteristic: recognizing and challenging power

dynamics that privilege some participants over others. Deliberative democratic educators must therefore create deliberative experiences that allow for non-rational forms of communication like greeting, rhetoric, and storytelling and "make explicit to students the role that these elements play in supporting participation and illuminating how power functions in deliberative democracy" (Weasel, 2017, p. 4). In that way, students will develop inclusive skills, attitudes, and values, like the attitude that more inclusion means more justice.

While inclusion-oriented approaches to deliberative democratic address some of the problems with reason-oriented approaches, they can also be problematic. Weasel (2017) may create deliberative experiences that allow for non-rational forms of communication like greeting, rhetoric, and storytelling, but even she and deliberative democratic educators like her privilege humans over nonhuman animals and ecosystems who are also affected by an issue. By participating in deliberative experiences in which humans are privileged over nonhuman animals and ecosystems, students may develop exclusive attitudes, specifically anthropocentric ones. To address this possibility, I have theorized multispecies communicative democratic education: an approach to environmental decision making and deliberative democratic education in which students make decisions about complex environmental issues by participating in deliberations about them that include humans, nonhuman animals, and ecosystems through proxy representation.

## Methods

In this section, I outline my research, including my research problem, methodologies, case, participants, plans, and methods.

### Research Problem

To contribute to the literature on multispecies communicative democratic education, I considered the following research problem:

1. The staff of Red Pines Nature Center (RPNC), a nature center at which I am working as an environmental educator, would like to teach its students and other visitors to make decisions about complex environmental issues; however, the center's current curricula do not explicitly address environmental decision making.

## Methodologies

Having determined my research problem, I adopted two methodologies to address it: action research, specifically practitioner action research; and case study research, specifically observational case study research.

**Action research and practitioner action research.** Action research is

> a democratic and participative orientation to knowledge creation. It brings together action and reflection, theory and practice, in the pursuit of practical solutions to issues of pressing concern. Action research is a pragmatic co-creation of knowing *with,* not *on,* people. (Bradbury, 2015, p. 1)

According to Bradbury (2015), it has three key characteristics. First, it "is emergent and developmental" (Bradbury, 2015, p. 7). That is, action researchers begin research studies with research plans; however, they also allow their initial plans to develop and new plans to emerge after they enter their research sites. Second, action research "concerns practical issues and human flourishing" (Bradbury, 2015, p. 7). In other words, action researchers address research problems and questions that are practical and related to people's wellbeing. Third, action research "is primarily participative and democratic, working with participants and toward knowledge in action" (Bradbury, 2015, p. 7). Action researchers are also co-participants in their studies, and the other participants are also co-researchers. To Bradbury's (2015) three characteristics of action research, I add two more characteristics. Fourth, it is iterative. Action researchers address research problems and questions by following an iterative process of planning, acting, observing, and reflecting that Kemmis, McTaggart,

and Nixon (2014) call "the action research spiral" (p. 19). Fifth and finally, action research is, or at least is becoming, multispecies. In the most recent edition of *The SAGE Handbook of Action Research,* Merskin and Durham (2015) argue that action research can and should include nonhuman animals and ecosystems:

> [W]e favor an evolution within PAR [participatory action research] to include other species because communicates and individuals remain veiled and unheard, despite a liberatory ethos informing practice. In addition, animal communities and their needs represent a blind spot within the tradition. Thus, exclusion of Others, on the basis of species, is inconsistent with the inclusionary nature of PAR. (p. 584)

While other methodologies may share some of these characteristics, action research is unique in having all of them.

Within the action research methodology, I adopt the more specific approach of practitioner action research, which Anderson, Herr, and Nihlen (2007) define as

> "insider" research done by practitioners using their own site (classroom, institution, school district, community) as the focus of their study. It is a reflective process but is different from isolated spontaneous reflection in that it is deliberately and systematically undertaken and generally requires that some form of evidence be presented to support assertions. (p. 2)

Practitioner action research shares action research's key characteristics, but it approaches them in a distinct way (Anderson et al., 2007). First, it is "is emergent and developmental," and practitioner action researchers' status as insiders to their research site means that their initial plans have already emerged and developed to an extent. Second, practitioner action research "concerns practical issues and human flourishing," and practitioner action researchers' insider status means that their research problems and questions are related to their own practices and flourishing and the practices and flourishing of people close to them. Third, it is "primarily participative and democratic, working

with participants and toward knowledge in action," and practitioner action researchers' insider status means that they are conducting research on themselves and with people close to them. Fourth, it is iterative, and practitioner action researchers' insider status means that the process of planning, acting, observing, and reflecting will continue after the study formally ends. Fifth, and finally, practitioner action research can be multispecies, and practitioner action researchers can and should include the nonhuman animals and ecosystems as well as the people close to them.

Action research, including practitioner action research, has different quality standards than other methodologies. According to Herr and Anderson (2015), these "validity criteria" (p. 67) are outcome, process, democratic, catalytic, and dialogic validity. Outcome validity is "the extent to which actions occur, which leads to a resolution of the problem that led to the study" (Herr & Anderson, 2015, p. 67). That is, the quality of an action research study depends upon the extent to which it addresses the research problem or question. Process validity "asks to what extent problems are framed and solved in a manner that permits ongoing learning of the individual or system" (Herr & Anderson, 2015, p. 68). In other words, a study's quality is also connected to how much it teaches the researchers and participants about the research site. Democratic validity "refers to the extent to which research is done in collaboration with all parties who have a stake in the problem under investigation" (Herr & Anderson, 2015, p. 69). A study's quality depends upon the extent to which the researcher includes the participants as co-researchers. Catalytic validity is "the degree to which the research process reorients, focuses, and energizes participants toward knowing reality in order to transform it" (Lather, as cited in Herr & Anderson, 2015, p. 69). A study's quality is furthermore connected to how much it inspires the participants to take action. Finally, dialogic validity is "the validation—both during and after the study—that methods, evidence, and findings resonate with a community of practice" (Herr & Anderson, 2015, p. 70). This community of practice can include practitioners, action researchers, and other scholars.

The characteristics of action research, particularly practitioner action research, made it an ideal methodology through which to address my research problem. First, my research problem emerged through my work at RPNC. Moreover, given that multispecies communicative democratic education is a novel approach to education, they would likely develop as I put it into practice. Second, my problem and question were concerned with the practical issue of teaching people to make decisions about environmental issues. Furthermore, this practical issue was concerned with human flourishing in that people must make effective decisions about the environmental issues they face if humans are to flourish. Third, my problem and question were not mine alone, but ones I share my colleagues at RPNC. Therefore, addressing them democratically and participatively with my colleagues was fitting. Fourth, my problem and question were both exploratory and pragmatic. Wanting to develop a multispecies communicative democracy curriculum but having limited empirical knowledge of the approach, I had to address them iteratively. Fifth, my problem and question were related to nonhuman animals and ecosystems, so adopting action research helped answer the call to include nonhuman animals and ecosystems in it.

**Case study research and observational case study research.** Case study research is "the intensive study of a case" (Glesne, 2010, p. 22). According to Glesne (2010), it has two distinguishing characteristics. First, it focuses on a case, which is "a *bounded* integrated system with working parts" (Glesne, 2010, p. 22). Case study researchers can focus on a wide range of cases, including people, like individual students and classes; places, like classrooms and schools; and processes, like teaching and learning. Second, case study researchers analyze this case through "in-depth and often longitudinal examination with data gathered through participant observation, in-depth interviewing, and document collection and analysis" (Glesne, 2010, p. 22). Case study researchers gather data widely and analyze it deeply. The set of these two characteristics is unique to case study research.

Within the case study research methodology, I adopt the more specific approach of observational case study research, in which the case is an organization or a group of people, a place, or a process within an organization. Observational case study researchers primarily collect data through observation, but they can also collect data through interviews, documents, and other methods (Bogdan & Biklen, 2007). When selecting a school to study, they may use typical case sampling, in which they select a school that is typical of schools in its area; extreme case sampling, in which they select a school that is atypical of schools in its area; or another selection strategy (Glesne 2010). Depending on the organization's size and their focus within it, the researcher may select all of its members as participants, or use a selection strategy (Glesne, 2010).

As with action research, case study research, including observational case study research, has different quality standards than other methodologies. According to Lincoln and Guba (1985), these "trustworthiness criteria" (p. 301) are credibility, transferability, dependability, and confirmability. Credibility refers to how adequately a researcher's findings represent their participants' experiences (Lincoln & Guba, 1985). To ensure a case study's credibility, case study researchers can use techniques like triangulation, in which they use multiple pieces of evidence from the same and different sources to support their claims (Lincoln & Guba, 1985). Transferability refers to how applicable a researcher's findings are to other contexts (Lincoln & Guba, 1985). To make a study more transferable, researchers can provide thick description, or describe their findings in enough detail that practitioners and other researchers can determine the extent to which they apply to other cases (Lincoln & Guba, 1985). Dependability refers to how likely a researcher would be to have similar findings if they repeated the study (Lincoln & Guba, 1985). To ensure a study's dependability, researchers can use techniques like inquiry audits, in which a researcher unaffiliated with the study reviews the its protocols (Lincoln & Guba, 1985). Confirmability refers to how closely a researcher's findings match the data they collected (Lincoln & Guba, 1985). To make a

study's more confirmable, researchers can use reflexivity, in which they reflect on their own relationship to the study and how it may influence their research (Lincoln & Guba, 1985).

The characteristics of case study research, particularly observational case study research, made it a strong complement to practitioner action research. First, it emphasized that my process of developing and teaching a multispecies communicative democracy curriculum was a system. I was certainly part of the system, but the system had other parts like my colleagues at RPNC and students at RPNC's summer camp. Second, it offered me a set of methods for examining the system. Through methods like artifact analysis and interviews, I gained an in-depth understanding of the relationships among its different parts.

**Case and Co-Participants/Co-Researchers**

Having adopted my methodologies, I selected my case: my developing and teaching a multispecies communicative democracy curriculum at RPNC's summer camp. I also selected my co-participants/co-researchers: myself, my colleagues at RPNC, my students at RPNC's summer camp, the nonhuman animals who inhabit RPNC, and the ecosystem of RPNC.

**Developing and teaching a multispecies communicative democracy curriculum at RPNC's summer camp.** My case was my process of developing and teaching a multispecies communicative democracy curriculum at RPNC's summer camp. RPNC is a nature center with 100 acres of forest, prairie, and pond habitats and five miles of interpretive and non-interpretive trails. It also has a visitor center with exhibits about natural history, displays of taxidermied nonhuman animals, and enclosures with live nonhuman animals. The city in which RPNC is located manages the habitats and non-interpretive trails, and Red Pines Conservancy (RPC), a 501(c)(3) non-profit organization, manages the visitor center and interpretive trails. RPC also leads educational programs for children and adults and hosts community events like seasonal festivals and stewardship days.

RPNC's summer camp is its most significant educational program in terms of the amount of time and resources its educators devote to it. It consists of eight weeklong camps, each of which focuses on a part of nature or a way in which humans interact with nature. During the summer I conducted my research, the camps were "Natural Mystery," "Water World," "Natural Art," "Survival Skills," "Creepy and Slimy" "The Magic of Flight," "Warm and Fuzzy," and "Adventures in a Prairie." The camp is open to elementary school students, who are assigned to groups of up to ten students, one educator, and one assistant. During the summer I conducted my research, the groups were the "Chipmunk Group" for mostly Kindergarten and first grade students, "Squirrel Group" for mostly second and third grade students, and "Rabbit Group" for mostly fourth and fifth grade students.

I developed a curriculum for the "Water World," "Natural Art," and "Creepy and Slimy" camps, and I taught it to the camps' older group of students. I chose these three camps because they were separated from each other by one week, which gave me time to analyze the curriculum, share my analysis with my colleagues, and revise the curriculum before the next camp. However, I developed the curriculum for all of the camps and could have taught it at any of them with some modification. I chose the Rabbit Group of mostly fourth and fifth grade students because I had the most experience teaching at these ages. That said, I developed the curriculum for all of the camps' students and could have taught it to any of them with some modification.

My process of developing and teaching a multispecies communicative democracy curriculum at RPNC's summer camp was a typical case in that RPNC is one of several nature centers in its city and one of numerous nature centers in its state and region. Many of these nature centers also offer summer camps that focus on nature and the ways humans interact with nature. However, my process was also an extreme case in that, to my knowledge, few of these nature centers offer programs that teach students and other visitors to make decision about environmental issues.

Despite these differences, my unique ability to develop and teach an environmental decision making curriculum had the potential to influence them.

**Myself.** I am a PhD candidate studying environmental education at a large research university in the Midwestern United States. I am also an environmental educator at RPNC. My status as a co-participant made me an "insider" to the camp (Herr & Anderson, 2015, p. 45). As an insider, I had opportunities other researchers would not have had. For example, I had an tentative understanding of the camp's curriculum before the study began. At the same time, I faced challenges other researchers would not have faced. According to Herr and Anderson (2015)"[s]ome of the worst action research studies are done be researchers who are insiders, but fail to fully acknowledge this positionality and think through its implications" (p. 42). They advise insider researchers to "acknowledge one's presence in the study" and "build in methods of self-reflection" (Herr & Anderson, 2015, p. 45). I recognized that my status as an insider, particularly an insider developing and teaching a novel curriculum, could affect my interpretation of my findings. To address this possibility, I met regularly with my colleagues at RPNC to discuss my findings.

**My colleagues at RPNC.** At the time of my study, RPNC had eleven staff members, excluding myself. It also had one summer camp intern. Of the eleven staff members, five agreed to participate. The intern also agreed to participate. My colleagues' status as participants and co-researchers made me an "insider in collaboration with other insiders" (Herr & Anderson, 2015, p. 45). As an insider in collaboration with other insiders, I had opportunities other researchers would not have had. For instance, I did not have to establish relationships with them before the study began. At the same time, I faced challenges other researchers would not have faced. According to Anderson, Herr, and Nihlen (2007), insider-insider collaborations may seem democratic when they are not. They advise that "[c]arefully thinking through one's positionality within an organization is important in understanding how it may impact the trustworthiness of the findings and the ethics of

the research process" (Anderson et al., 2007, p. 9). I recognized that RPNC's director and education manager had power over me as my supervisors, and that I may have had power over some of RPNC's other educators. To navigate these power dynamics, I explicitly addressed them at my and my colleagues' regular meetings.

**My students at RPNC's summer camp.** During the three camps for which I developed curricula, I had 22 students, including three students who attended two separate camps. Fourteen of them were boys, and eight of them were girls. They ranged in age from eight to 13 years old. I invited all 22 of my students to participate in my study. Of them, 18 agreed to participate.

Doing research with children and students tends to involve greater risks and ethical challenges than doing research with adults. According to Freeman and Mathison (2008), children are a vulnerable population in three ways: first, they are "inherently vulnerable" (p. 24) because of their size, physicality, and knowledge and experience; second, they are "structurally vulnerable" (p. 24) because of their lack of social power; and third, they are "vulnerable because of normative beliefs about their capacities" (p. 24). My students were also vulnerable because of my power over them as their teacher. Freeman and Mathison (2008) advised that researchers obtain both "consent from parents or guardians and assent from the youth who will participate in the research" (p. 30), and that they "adopt open communication with child participants (who may be unsure or confused about how to respond to being treated as competent social actors) and critical reflexivity toward all aspects of the research as it occurs" (p. 70). I obtained consent from my students' parents and assent from my students. I also told them that I was conducting research into my own teaching and that they were helping me become a more effective teacher.

**The nonhuman animals of RPNC.** Responding to Bastian's (2017) call for a "more-than-human participatory research" (p. 19), I included RPNC's nonhuman animals as participants in my study. At the time of the study, RPNC had the following captive nonhuman animals living in its

visitor center: three Eastern box turtles, two American toads, two Western hognose snakes, a common snapping turtle, a garter snake, a gray tree frog, a Harlequin rabbit, a tiger salamander, and numerous cockroaches, crickets, and earthworms. It also had wild and liminal nonhuman animals living in the park, including deer, raccoons, skunks, squirrels, frogs, salamanders, snakes, turtles, birds, and fish.

Including nonhuman animals as research participants presents several challenges. According to Kuhl (2011), good representations of nonhuman animals meet three standards:

> first, portray the subjectivity (rather than machine-like objectivity) of other animals (helping to break down processes of othering); second, lead us to understand or empathize with that animal and her or his embodied experience…third help us, as animals ourselves, to understand our similarities and/or differences to other animals; and finally, lead us to more ethical relationships with animal-others. (p. 118)

Applied to participation, these standards mean that nonhuman animals should participate as subjects, not objects, and that their participation should lead to greater understandings of them and more ethical relationships with them. I tried to meet these standards by obtaining consent from RPNC's nonhuman animals before including them as participants. For example, I had planned on moving the rabbit from her enclosure into a pen one day, but she ran away from me when I entered the enclosure. For that reason, I left her in the enclosure and told my students that she had decided not to join us. That said, I knowingly failed to meet the standards at times. For instance, I had my students go fishing in one of RPNC's ponds one camp, even though I had not sought the fishes' consent, because I wanted them to experience fishing with nets and hooks as part of a deliberation about regulating fishing at RPNC.

**The ecosystem of RPNC.** Again responding to Bastian's (2017) call for "more-than-human participatory research," I also included RPNC's ecosystems as participants in my study. RPNC's ecosystems include a prairie, forests, wetlands, ponds, and lawns.

While Kuhl's (2011) standards focus on nonhuman animals, they can also apply to ecosystems. I tried to meet these standards by obtaining consent from RPNC's ecosystems before including them as participants. For example, I chose not to lead certain activities in the prairie because I observed many nonhuman animals and plants living in the prairie and thought that some activities would interfere with the relationships among them. That said, I knowingly failed to meet the standards at times. For instance, I had my students pick up logs in one of RPNC's forests one camp, even though I knew it would disturb the nonhuman animals and fungi living under them. I wanted them to recognize the impact of picking up logs on the forest as part of a deliberation on making natural art at RPNC.

## Plans and Methods

Having selected my case and participants, I developed a plan and methods to address my research problem: develop a multispecies communicative democracy curriculum, teach it at RPNC's summer camp, and analyze it using artifact analysis, in-depth interviewing, focus group interviewing, semi-structured interviewing, and critical self-reflection.

**Phase 0.** My plan to develop a multispecies communicative democracy curriculum for RPNC's summer camp had five phases; however, as Anderson et al. (2007) explain,

> [t]here is often a sense, in insider action research, that there is not a clear beginning or, for that matter, ending of the research. Research questions are often formalized versions of puzzles that practitioners have been struggling with for some time and perhaps even acting on in terms of problem solving. (p. 92)

I certainly have the sense that there is not a clear beginning to this action research study. My research problem is a formalized versions of a puzzle I have been struggling with since before I began writing my dissertation proposal. Several years ago, my guidance committee co-chair and I submitted a research proposal for a study on an environmental democratic citizenship curriculum at RPNC, and I applied for a temporary position as a counselor at RPNC's summer school so I could teach the curriculum. RPNC's director and education manager approved the proposal and gave me the position, but the summer school did not have a high enough enrollment to run. I kept my position as a counselor and taught another curriculum at RPNC's summer camp, and I continued working at RPNC after the camp ended. I also continued studying environmental democratic citizenship education at my university and preparing to conduct my dissertation research on environmental democratic citizenship education at RPNC.

**Phase 1.** In Phase 1, I asked the research sub-question, "To what extent does RPNC's summer camp curriculum teach students about environmental decision making?" and I hypothesized that the curriculum does not teach students about environmental decision making. To address this question, I analyzed RPNC's summer camp curriculum using the method of artifact analysis. Artifacts are "things made, used, or given special meaning by human beings…because of how they relate to the history, behavior, practices, and the values and beliefs of the groups that produce and use them" (LeCompte & Ludwig, 2013, p. 1), and artifact analysis is the process of collecting and analyzing artifacts to gain an understanding of the group that produced and used them. I specifically collected artifacts related to RPNC's summer camp curriculum, including texts like its camp descriptions and unit plans and spaces like its classrooms and trails. I was unable to collect all of the artifacts related to RPNC's summer camp, so my collecting was "theoretically driven" (Miles, Huberman, & Saldaña, 2014, p. 33) and "iterative" (p. 33): I collected artifacts related to environmental decision making, and I stopped collecting them when each additional artifact added

little new meaning to my findings. I analyzed the artifacts as I collected them using inductive coding, in which meanings emerge from the data themselves (Miles et al., 2014). I then used pattern coding by grouping the inductive codes into patterns or themes (Miles et al, 2014). I also wrote "jottings" (Miles et al., 2014, p. 94), or short reflections about the artifacts, codes, and patterns, and "analytic memos" (p. 95), or longer syntheses of the jottings.

After analyzing the curriculum, I shared my findings with and asked for feedback on them from my colleagues at RPNC using the method of in-depth, open-ended interviewing. In in-depth interviews, interviewers explore "any and all facts of a topic in considerable detail during the course of an interview so as to deepen the interviewer's knowledge of the topic" (Schensul & LeCompte, 2012, p. 134), and in open-ended interviews, "the interviewer is not only free to ask further questions beyond those used to begin the interview but also is open to any and all relevant responses" (p. 135). I interviewed each colleague for approximately one hour; transcribed the interviews after completing them; analyzed them using inductive coding, jottings, and analytic memos; and used my analysis to nuance my findings (See Appendix A for the interview protocol).

**Phase 2.** In Phase 2, I asked the sub-question, "How can I more effectively incorporate environmental decision making into RPNC's summer camp curriculum?" and I hypothesized that developing a multispecies communicative democracy curriculum would incorporate environmental decision making into it. To address this question, I incorporated the theory and practice of multispecies communicative democracy into RPNC's summer camp curriculum using the method of backwards design. Backwards design is a method of curriculum development in which developers first determine their desired results, then acceptable evidence of those results, and finally a learning plan to achieve the results (Wiggins & McTighe, 2005).

After developing the curriculum, I shared it with and asked for feedback on it from my colleagues at RPNC using the method of focus-group interviewing. In a focus-group interview,

interviewers ask a group of interviewees a question and encourage them "to express their opinions and discuss them with one another" (Schensul & LeCompte, 2012, p. 195) while the interviewer "record[s] and analyze[s] the reactions of different group members to ideas and to each other" (p. 195). I interviewed my colleagues for approximately one hour; transcribed the interviews after completing them; analyzed them using inductive coding, jottings, and analytic memos; and used my analysis to revise the curriculum (See Appendix B for the interview protocol).

**Phase 3.** In Phase 3, I asked the sub-question, "To what extent does students' environmental decision making change when I teach the multispecies communicative democracy curriculum at RPNC's summer camp?" and I hypothesized that students would be more likely to use the practices of multispecies communicative democracy to make decisions about environmental issues after I had taught the curriculum. To address this question, I taught the revised curriculum to a group of elementary school students at RPNC's summer camp and analyzed it, specifically my students' learning experiences and my teaching experiences.

I analyzed my students' learning experiences using Clark's (2004) Mosaic approach, an approach to conducting research with children like elementary school students:

> The approach developed as a multi-method model. It was important to include a range of methods in order to allow children with different abilities and interests to take part. A multi-method approach also enabled traditional tools of observation and interviewing to contribute to the overall picture or "mosaic." There was also the added benefit of triangulation of the findings across the different methodologies. (p. 4)

The primary method I used was semi-structured interviewing. In semi-structured interviews, interviewers "combine the flexibility of the unstructured, open-ended interview with the directionality and agenda of the survey instrument" (Schensul & LeCompte, 2012, p. 174). To structure the interviews, I created two environmental decision making instruments by adapting

instruments Switzer (2009) had used to study high school students' environmental decision making to make them appropriate for elementary school students. Each of my instruments had a description of an environmental issue and a set of open-ended questions asking students to make a decision about the issue and explain why and how they made it. At the beginning of the camp week, I asked my students to complete the first instrument and then interviewed them about their responses for approximately five minutes. At the end of the camp week, I asked them to complete the second instrument and then interviewed them about their responses and overall experiences during the week for approximately five minutes. I transcribed the interviews after the week had ended and analyzed them using hypothesis coding, in which meanings comes from whether the data confirm or disconfirm hypotheses (Saldaña, 2016). I also used inductive coding, jottings, and analytic memos. (See Appendix C for the instruments and interview protocols).

I also used focus group interviewing. After the first round of semi-structured interviews, I asked my students to make a group decision about the environmental issue the first instrument had described while I recorded their decision-making process. After the second round of semi-structured interviews, I asked them to make a group decision about the environmental issue the second instrument had described while I recorded their decision-making process. I transcribed the interviews after the week had ended and analyzed them using hypothesis coding, inductive coding, jottings, and analytic memos. (See Appendix D for the interview protocols.)

I used artifact analysis as well. At the beginning of the week, I gave my students journals, pencils, and crayons. Throughout the week, I prompted student to reflect on their experiences and asked them to write or draw entries in which they recorded their reflections. I also told my students that they could add as many of their own entries as they wanted. At the end of the week, I took photographs of my students' journals. I analyzed them using hypothesis coding, inductive coding, jottings, and analytic memos.

I analyzed my own experiences teaching the curriculum using critical self-reflection, which is similar to participant observation. Participant observation is "a process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the research setting" (Schensul & LeCompte, 2012, p. 83). It has three steps: inscription, which "involves learning to notice what is important to other people and what one hasn't been trained to see, and then to write it down" (Schensul & LeCompte, 2012, p. 63); description, which "involves writing thing down in jottings, diaries, logs, and field notes" (p. 67); and transcription, which involves "the word-for-word creation of a written text from an audio-taped or videotaped account" as well as "any kind of elicitation from an informant" (p. 68). I made important observations as I was teaching but was unable to write them down in detail until I was done teaching; therefore, I wrote jottings in a small notebook during the day and then used them to type field notes in my computer at the end of the day. At the end of the week, I analyzed my field notes using inductive coding, jottings, and analytic memos.

After analyzing my students' learning experiences and my teaching experiences, I shared my findings with and asked for feedback on them from my colleagues at RPNC using focus group interviewing. I interviewed my colleagues for approximately one hour; transcribed the interviews after completing them; analyzed them using inductive coding, jottings, and analytic memos; and used my analysis to revise the curriculum a second time.

**Phase 4.** In Phase 4, I repeated the steps of Phase 3 with the second revision of the curriculum and a second group of students. At the end of Phase 4, I revised the curriculum a third time.

**Phase 5.** In Phase 5, I repeated the steps of Phase 4 with the third revision of the curriculum and a third group of students. At the end of Phase 5, I finalized the curriculum and shared it with my colleagues at RPNC.

**Phase 6, or Phase 1.** My plan only has five phases; however, returning to Anderson et al.'s (2007) above statement, "[t]here is often a sense, in insider action research, that there is not a clear beginning or, for that matter, ending of the research" (p. 92). As there was no clear beginning to this study, there is no clear ending to it. After I completed the five phases, I realized that they all formed the first phase of a larger study. This larger study's first phase asked the research sub-question, "What happens when I implement a multispecies communicative democracy curriculum at RPNC's summer camp?" To address this question, I reanalyzed the artifacts I had collected and transcripts I had written using inductive coding, jottings, and memos and used my analysis to plan the larger study's next phases.

## Developing, Teaching, and Analyzing a Multispecies Communicative Democracy Curriculum

Having developed my plan and methods, I began implementing them. In this section, I present the results of my action research case study as a narrative into which I integrate some of my data and analysis.[17]

### Phase 1: Analyzing RPNC's Summer Camp Curriculum

To address the research sub-question, "To what extent does Red Pines Nature Center's (RPNC's) summer camp curriculum teach students about environmental decision making?" I analyzed the camp's curricular artifacts using artifact analysis.[18] I then shared my analysis with my colleagues at RPNC and asked for their feedback.

[17] Each phase of this process is an individual study, so I cannot fully present each phase's results in this chapter; however, I will fully present each phase's results in future works.

[18] Notably, analyzing the camp's curricular artifacts offered insights into what the curriculum taught students about environmental decision making, but not into what students learned about environmental decision making. That said, understanding what a curriculum teaches students is an important first step in understanding what students learn from it.

**The camp's texts and spaces.** To analyze the camp's curricular artifacts, I collected and analyzed its texts and spaces.

***Texts.*** I focused on one of its texts: the curriculum guide, which is a binder of camp, lesson, and unit plans that all of the educators who teach the camp are expected to read and follow. The camp plans, which RPNC's director and education manager primarily wrote, all include a description of the camp and a list of objectives it aims to teach. For example, the description for "Natural Mystery" is "Have you ever wondered why the sky is blue, or where frogs go during the winter? Come and find out through exploration of our trails and hands-on experiments that will help you solve some of nature's amazing mysteries," and its objectives are "Discover the unique traits that help birds, bats, and insects fly; Identify environmental factors that influence flight; [and] Explore the natural history and life cycle of flying animals." Each camp plan also includes five daylong units. For instance, the units for "Natural Mystery" are "Become a Nature Detective," "The Wonders of Water," "The Subtlety of Soil," "The Inscrutability of Insects," and "The Secrecy of Seeds."

As with the camp plans, the unit plans, which RPNC's director and education manager primarily wrote, all include a description of the unit and a list of objectives. For example, the description for "Become a Nature Detective" is "Campers will dive right in by learning how to focus, observe, and identify. Campers will learn how to use tools of scientific inquiry, and will be encouraged to think more deeply to answer the simple question 'Why?'" and its objectives are "Identify a variety of plants and animals in their natural setting; Demonstrate use of science tools, like binoculars and magnifying lenses; [and] Use senses to make observations about nature." Each unit plan also includes a several lesson plans. For instance, the lessons for "Become a Nature Detective" are "Bird Sleuth," "Mystery Bag Nature Game," "Learn about naturalist/nature detective tools," "Meet a Tree," and "What made this? (Tree edition)."

Whereas the camp and unit plans include a description and list of objectives, the lesson plans, which RPNC's director, education manager, and educators as well as other educators wrote, do not all include the same components. Some lessons include descriptions, objectives, or other details. For example, "Mystery Bag Nature Game" includes the description, "Gather nature objects, put them in a bag, and have a friend guess what they are without looking" as well as a list of materials, a plan, and tips. Other lessons are less detailed. For instance, "Learn about naturalist/nature detective tools" includes the objective, "Provide campers with an opportunity to learn about and use tools of science inquiry, including binoculars, hand lenses, spotting scope, microscopes, and field guides," but few other details.

***Spaces.*** I focused on two of the camp's spaces: its visitor center and interpretive trail. Next to the parking lot, the visitor center is a building with exhibits about natural history, displays of taxidermied nonhuman animals, and enclosures with live nonhuman animals, and the groups meet in it at the beginning and end of the camp day as well as at various points throughout the day for lessons and unstructured play. The exhibits about natural history, which RPNC recently installed to make the visitor center more accessible, aim for students and other visitors to use all five of their senses. They include Hear, at which visitors can listen to bird calls and match them to bird photographs; Feel, at which they can feel mammal furs and match them to mammal photographs; Look, at which they can play a computer game about metamorphosis; Build, at which they can build an artificial bird nest; Rot, at which they can add food scraps to and turn an artificial compost pile; Pollinate, at which they can pollinate artificial flowers; Fly, at which they can compare birds' wingspans to their own arm span; and an unnamed exhibit, at which they can put on nonhuman animal costumes and camouflage themselves against illustrated landscapes. In my experience, educators use the exhibits for some of their lessons, and students spend more time interacting with the exhibits than with the visitor center's other spaces during their unstructured play.

The displays of taxidermied nonhuman animals, which RPNC received as donations, aim for students and other visitors to see the appearance of nonhuman animals they may not encounter in a more natural setting. They include a large case of 10 nonhuman animals: three owls, two hawks, two minks, an eagle, a turkey, and a pheasant. All of these nonhuman animals are arranged in dynamic poses, and they are surrounded by logs, pine cones, and other natural items to simulate their natural habitats. Some of them also have placards with their common and scientific names. The displays also include a smaller case of three nonhuman animals: two owls and a kingfisher. These nonhuman animals are arranged in static poses, and they are not surrounded by logs, pine cones, or other natural items; however, the smaller case does have eight bird nests, some of which have infertile or cracked bird eggs in them. Again, some of these nonhuman animals and nests have placards. The displays also include an owl mounted to a wall by the visitor center's entrance and a hawk mounted to a wall near one of the exhibits. Both the owl and the hawk are arranged in very dynamic poses, as if to catch students' and other visitors' attention. In addition to the displays of taxidermied nonhuman animals, the visitor center also has displays of nonhuman animal body parts like mammal furs and turtle shells and natural items like mushrooms and rocks. In my experience, educators use the displays for few of their lessons, and students spend little time interacting with them.

The enclosures with live nonhuman animals, some of whom were rescued from less humane living situations and some of whom were captured from RPNC's habitats, aim for students and other visitors to see the appearance and behavior of nonhuman animals they may not encounter in a more natural setting. They include a wall of inset terraria and an inset aquarium, which enclose eight nonhuman animals: two western hognose snakes, a garter snake, a red-eared slider, two American toads, a gray tree frog, and a tiger salamander. These terraria and the aquarium are rather small, but they use soil, branches, and other items to simulate their inhabitants' natural habitats. The enclosures also include a freestanding terrarium that encloses three eastern box turtles and a freestanding

aquarium that encloses a common snapping turtle. The freestanding terrarium and aquarium are both somewhat larger than the inset terraria and aquarium, and they also uses soil, branches, and other items to simulate the turtles' natural habitats. The enclosures also include a windowed room that encloses a Harlequin rabbit. It is larger than the inset and freestanding terraria and aquaria, and it uses ramps and boxes to give the rabbit even more space. In addition to the enclosures, the visitor center has a plexiglass bee box connected to the outdoors by a tube in which students and other visitors can watch domesticated bees building a hive in the box. It also has a bird feeding area visible from indoors at which students and other visitors can watch wild birds as well as wild squirrels and deer. In my experience, educators use the enclosures more than the visitor center's other spaces for their lessons, and students spend some time interacting with them.

Next to the visitor center, the interpretive trail is a trail with outdoor exhibits and signs that connects RPNC's ecosystems, and groups must hike on it to reach any outdoor space at RPNC. The outdoor exhibits aim for students and other visitors to experience nonhuman animals and ecosystems in a natural setting. They include a butterfly house in which RPNC raises monarch butterflies during the spring and summer before releasing them in the fall. The house has mesh walls, so students and other visitors can see the butterflies at various stages of their life cycles. It also has sign explaining monarch butterflies' importance to ecosystems and how raising and releasing them helps conserve them, so students and other visitors can connect the butterflies they see to an environmental issue. The outdoor exhibits also include a pollinator garden in which RPNC has planted native, flowering plants that attract pollinators like butterflies, hummingbirds, and bees. It also has signs explaining pollinators' importance to ecosystems and how people can grow pollinator-friendly plants in their own yards, so students and other visitors can connect the plants and pollinators they see to another environmental issue. The outdoor exhibits also include a natural playground, in which RPNC has constructed stations for children to build with sticks, climb trees,

and otherwise play in nature. In my experience, educators use the natural playground more than the other outdoor exhibits, as many students prefer going to it for their unstructured play; however, educators also use the butterfly house and pollinator garden for some of their lessons.

The signs also aim for students and other visitors to experience nonhuman animals and ecosystems in a natural setting. They include a series of eye, ear, nose, hand, and mouth graphics that mark locations at which students and other visitors can look at, listen to, smell, touch, and taste plants and other natural entities. For example, a sign with an ear marks a location at which frogs croak in the spring, and a sign a tongue marks a location at which edible wood sorrel grows in the summer. The signs also include a series of consecutive pages from a storybook that let students and other visitors read a story as they hike. For instance, one story is about the lives of squirrels, and surprisingly, another story is about a construction site. The signs also include descriptions of the trail's ecosystems and other natural features. A sign next to the prairie describes the different types of prairie ecosystems, and a sign next to the forest describes the features of garlic mustard. In my experience, educators use the sensory signs more than the other signs; however, they use the signs for few lessons, and few students show interest in them.

RPNC's ecosystems, which have aims in the sense that RPNC manages them, also aim for students and other visitors to see and otherwise experience nonhuman animals and ecosystems in a natural setting. They include an artificial pond, which RPNC aerates with a pump. The pond is home to fish, frogs, and other nonhuman animals as well as reeds, sedges, and other plants. RPNC does not allow visitors to fish or swim in the pond, but some educators allow their students to fish in it. The ecosystems also include a prairie, which RPNC is restoring by removing nonnative plants and planting native plants. The prairie is home to birds, insects, and other nonhuman animals as well as grasses, oak trees, and other plants. RPNC does not allow visitors to walk off trail in the prairie, but some educator allow their students to follow nonhuman animal trails. The ecosystems also include a

forest, which RPNC manages by removing nonnative plants. The forest is home to deer, squirrels, and other nonhuman animals as well as maple trees, pine trees, and other plants. As with the prairie, RPNC does not allow visitors to walk off trail in the prairie, but some educators allow their students to follow nonhuman animal trails. In my experience, educators use the pond more than the other ecosystems, as many students enjoy fishing in it; however, educators also use the prairie and forest for their lessons.

**Analyzing the camp's texts and spaces.** I analyzed the camp's texts and spaces separately, as I could not identify comparable units of analysis for them. For the texts, I used each individual objective and lesson (n=410), including the camp plans' objectives, unit plans' objectives, and lessons as my unit of analysis; and for the camp's spaces, I used each type of space (n=12), including the natural history exhibits, taxidermied nonhuman animal displays, live nonhuman animal enclosures, butterfly house, pollinator garden, natural playground, sensory signs, story signs, informational signs, and trails by the artificial pond, prairie, and forest, as my unit of analysis.

***Results.*** In both analyses, the same theme emerged: Connecting to Nature. Connecting to Nature refers to humans' physical, intellectual, emotional, and moral connection to nature, including nonhuman animals and ecosystems. Most objectives and lessons (n=371/410, or 90%) fell into this theme.[19] For example, the objectives for "Water World" included "Describe a pond ecosystem," "Explain why water is important to all life on earth," "Classify pond animals according to their characteristics," and "Interact with waterfronts and aquatic animals safely and respectfully." By meeting these objectives, students would connect to nature, specifically nonhuman animals who live in ponds and pond ecosystems. Every spatial artifact (n=12/12, or 100%) also fell into this

[19] Almost every objective and lesson that did not fall into the Connecting to Nature theme were part of the "Natural Art," "Survival Skills," or "Adventures in a Prairie" camps, which focused on nature as well as other topics. The objectives and lessons that did not fall into the Connecting to Nature theme focused on these other topics.

subtheme. For instance, the natural history exhibits encouraged visitors to listen to bird calls, feel mammal furs, and otherwise engaging with nonhuman animals and ecosystems. In this way, students and other visitors would further connect to nature. While almost every objective and lesson and every type of space fell into the Connecting to Nature theme, different artifacts emphasized different ways of Connecting to Nature; therefore, three subthemes also emerged: Knowing Nature, Experiencing Nature, and Using Nature.

Knowing Nature refers to connecting to nature through knowledge about nature, including nonhuman animals and ecosystems. Many objectives and lessons (n=270/410, or 66%) fell into this subtheme. For example, the objectives for "Snails, Slugs, and Slime," a unit of "Creepy and Slimy," included "Identify the parts of a snail" and "Explain why some animals are slimy." By meeting these objectives, campers would gain knowledge about snails and other slimy nonhuman animals, and in that way, they would become more connected to them. Many spatial artifacts (n=6/12, or 50%) also fell into this theme. For instance, the informational signs provided visitors with information about RPNC's ecosystems, like the following information about prairies:

> A prairie is a complex ecosystem of native grasses and wildflowers with a few species of trees. It is adapted to regenerate after disturbances like fire and grazing. Native plants provide food and homes for hundreds of species of insects and animals.

The presence of such signs suggests that knowing about prairies is important to connecting with them.

Experiencing Nature refers to connecting to nature through appreciative experiences with nature, such as reflective experiences with nonhuman animals and active experiences in ecosystems. Fewer objectives and lessons (n=155/410, or 38%) fell into this subtheme, but many still did. For example, "Homestead Farming," an activity in the "Adventures in a Prairie" camp, called for educators to

> [u]sing the cross cut saw have campers try their hand at cutting a log for clearing. Outline the parts of the saw and how it works before giving safety instructions. Next they must turn over the rooted prairie grass to expose the soil. Using the hand hoe, have campers try and clear a patch of grass. Each seed must be sown by hand at exactly the right depth, so proved campers with bean seeds to plant.

By participating in this activity, students would have an experience in a prairie, and through the experience, they would become more connected to prairies. Some of the spatial artifacts (n=4/12, or 33%) also fell into this theme. For instance, the live nonhuman animal enclosures allowed visitors to see nonhuman animals like salamanders and turtles who they may not have encountered on the trails. The presence of these nonhuman animals suggests that experiencing them is important to connecting with them.

Using Nature refers to connecting to nature through the consumptive use of nature, such as the use of nonhuman animals for food and the use of ecosystems for recreation. A similar number of objectives and lessons (n=151/410, or 47%) fell into this subtheme as into Experiencing Nature. For example, the objectives for "Food and Water," a unit of "Wilderness Survival," included "Identify local animal activity through tracking" and "Distinguish wild edibles from toxic plants." By meeting these objectives, campers would learn to how to use nonhuman animals and plants for food, and in that way, they would become more connected to them. Many spatial artifacts (n=6/12, or 50%) also fell into this category. For instance, the sensory signs encouraged visitors to touch and taste some plants. The presence of these signs suggests that using plants is important to connecting with them.

Notably, some artifacts fell into multiple subthemes. For example, "Water Pollution," an activity in "Water World," called for educators to

> [c]elebrate Earth Day, or bring green to any day, by encouraging your kids to explore the effects of water pollution on the environment. Is our water polluted? Gather some samples, arm yourselves with coffee filters, and find out! This activity is a good way to encourage kids to be more aware of their environment and it allows them to make connections with real-world, environmental issues.

By participating in this activity, students would gain knowledge about nature by exploring the effects of water pollution, have experiences in nature by gathering macroinvertebrates from ponds, and make use of nature by treating the macroinvertebrates as indicator species. Through this combination of knowledge, experience, and use, they would become more connected to water. The taxidermied nonhuman animal displays also fell into multiple subthemes. For instance, by viewing the taxidermied birds, visitors would gain knowledge about the birds by reading their placards, have experiences with them by seeing their bodies up close, and make use of them by treating their bodies as a source of knowledge and experience. This combination of knowledge, experience, and use suggests that the three ways of connecting to nature can be linked.

***Discussion.*** Through my analyses, I found that the camp's texts and spaces taught students that connecting to nature is important, and they offered students three different ways of connecting to nature: by knowing, experiencing, and using nature; moreover, the texts and spaces did not teach students that one way of connecting to nature was more important than the others, and some even demonstrated that students could connect to nature in different ways at the same time. These findings were not surprising, as part of RPNC's mission is to connect people to nature, and its mission drives its educational programs; however, RPNC is located in a diverse urban area, so it must be inclusive of people who connect to nature in different ways. By exposing students to different ways of connecting to nature without teaching them that one way of connecting to nature

is more important that the others, the camp's texts and spaces can pursue RPNC's mission of connecting people to nature and also be inclusive of all students and their families.

Regarding the research sub-question, I found that the camp's texts and spaces did not explicitly teach students about environmental decision making; nonetheless, they did help prepare students to make decisions about environmental issues. According to the theory of multispecies communicative democracy and theories of deliberative democracy in general, a necessary component of making decisions about an issue is identifying the stakeholders. By exposing students to different ways of connecting to nature, the texts and spaces helped them identify some of the human stakeholders in environmental issues: people who value knowing nature, people who value experiencing nature, and people who value using nature. A second component of making decisions is being open to all stakeholders' positions. By not teaching students that one way of connecting to nature is more important than others, the texts and spaces helped them be open to all human stakeholders' positions in environmental issues. That said, the texts and spaces could have more explicitly taught students about environmental decision making by clarifying that identifying the stakeholders and being open to all stakeholders' positions are two of several necessary components of making decisions, and that nonhuman animals and ecosystems are also stakeholders.

**Sharing my findings with my colleagues.** After analyzing the camp's curricular artifacts, I shared my findings with my colleagues at RPNC during our in-depth, open-ended interviews and asked them for their feedback. Given my findings about connecting to nature through knowing, experiencing, and using nature, I first asked my colleagues about RPNC's mission of connecting people to nature. Not surprisingly, all of them agreed that connecting people to nature was important to their work, and that different students and other visitors connected to nature in different ways. For example, Susan admitted that she did not think of RPNC's mission on a regular basis, but liked its focus on connecting people to nature "because a lot of people think cities, there's

nothing nature-y about them." She added that "some people are going to love to look at the classic stuff like the old mounts. Some people are going to love to get their hands dirty in the compost bin" (Susan). Lucy agreed that connecting people to nature was important to her work:

> I think what [connecting people to nature] ultimately means is that people in our community will continue to value or even begin to value in some cases the greenspaces that we do have here and seek out more opportunities to be in those greenspaces.

She added that RPNC is open to different ways of valuing greenspaces and the rest of nature, but that RPNC does have a particular way of valuing nature:

> We believe that in order to connect people with nature, we have to make some concessions. There has to be some ability to think about wise use and think about how we can make choices to sustain and make our environment last longer and the resources that we need to last longer but also to derive enjoyment and life. (Lucy)

That is, RPNC may expose students and other visitors to different ways of connecting to nature, as I found, but it also aims to teach them about making choices to sustain the environment.

Given the study's focus on environmental decision making, I also asked my colleagues about the extent to which RPNC teaches students and other visitors about environmental decision making. All of them agreed that RPNC should teach students and other visitors to make decisions about complex environmental issues, but that teaching environmental decision making presented challenges. For example, Mary recognized that "I think it's helpful to…have [kids] trying to make decisions at a young age that can help them think about how the environment works and how decisions that they make can impact the environment around them." She added that organizations like RPNC should teach students to consider the impacts of their decisions on humans, nonhuman animals, and ecosystems, but that teaching them to consider the impacts on some nonhuman stakeholders is more difficult "because they don't have faces, they don't have hair, they don't have

all these cuddly, cute things that animals have" (Mary). Pam agreed that RPNC should teach students and other visitors to make decisions about complex environmental issues:

> If you can find some sort of roadmap that we can lay to create a standard for ethics development in our curriculum, like I said, I'm the first to attend your seminar because it is so greatly needed. The research that you are doing now…it's really underserved stuff. It's really under understood stuff, and so we have an opportunity here to not only work within our…community, but really to set this on really a national bar level.

She added that teaching environmental decision making is very challenging,

> And it's incredibly likely…that the work that you're doing now, you may not see a huge impactful difference in your lifetime. But the work that you're doing now is what four generations from now will see the huge impactful difference. (Pam)

Thus, developing a multispecies communicative democracy curriculum for RPNC's summer camp would not only benefit myself, but also my colleagues at RPNC.

Having shared my findings with and receive feedback on them from my colleagues, I concluded that they supported the study, but that I could make it more useful to them in at least two ways. First, in response to Lucy's statements, I could focus the multispecies communicative democracy curriculum on issues involving use of RPNC and its community's other greenspaces. Second, in response to Pam's statements, I could structure the curriculum as a framework that environmental educators at other organizations could apply to their own curricula.

**Phase 2: Developing the First Multispecies Communicative Democracy Curriculum**

To address the research sub-question, "How can I more effectively incorporate environmental decision making into RPNC's summer camp curriculum?" I incorporated the theory and practice of multispecies communicative democracy into RPNC's summer camp curriculum

using backwards design. I then shared the multispecies communicative democracy curriculum with my colleagues at RPNC and asked for their feedback.

**Developing the first multispecies communicative democracy curriculum.** To incorporate the theory and practice of multispecies communicative democracy into RPNC's summer camp curriculum, I used backwards design to first determine what the multispecies communicative democracy curriculum's desired results and acceptable evidence of those results were, and then create a learning plan to achieve those results as well as the summer camp curriculum's other desired results (Wiggins & McTighe, 2005).

***Desired results and acceptable evidence.*** I first determined what the multispecies communicative democracy curriculum's desired results were. According to Wiggins and McTighe (2005), a curriculum's desired results include goals for students, essential questions they think about, enduring understandings they gain, and knowledge and skills they develop. Given the study's focus on environmental decision making, I rooted the curriculum's desired results in the theory of multispecies communicative democracy: a theory of deliberative democracy that includes nonhuman stakeholders in deliberations through participation and representation. I first determined that the curriculum had two goals:

1. Students will be able to make democratic decisions about environmental issues.
2. Students will be able to participate in democratic deliberations about environmental issues.

Next, it had four essential questions:

1. How can I make democratic decisions about environmental issues?
2. How can I identify the stakeholders in an environmental issue?
3. How can I consider the stakeholders' perspectives?
4. How can I find common ground among the perspectives?

The curriculum also had four essential understandings:

1. I can make democratic decisions about environmental issues by identifying stakeholders, considering their perspectives, and finding common ground among them.
2. I can identify the stakeholders in an environmental issue by thinking about the humans, nonhuman animals, and ecosystems it affects.
3. I can consider the stakeholders' perspectives by learning about them and empathizing with them.
4. I can find common ground among the perspectives by comparing them with one another.

Finally, it had six knowledge and skill elements:

1. Students will be able to list the steps of democratic decision making.
2. Students will be able to describe environmental issues in their community.
3. Students will be able to identify stakeholders in environmental issues.
4. Students will be able to find information about stakeholders in environmental issues.
5. Students will be able to describe the perspectives of stakeholders in environmental issues.
6. Students will be able to compare the perspectives of stakeholders in environmental issues.

I did not intentionally align the desired outcomes with any published standards, but they aligned with elements of both the *Next Generation Science Standards* (NGSS Lead States, 2013) and the *College, Career, and Civic Life (C3) Framework for Social Studies State Standards* (National Council for the Social Studies, 2013).

Having determined what the multispecies communicative democracy curriculum's desired results were, I determined what acceptable evidence of those results was. Acceptable evidence

includes performance tasks and other evidence through which students will demonstrate that they have accomplished the goals (Wiggins & McTighe, 2005). It should be relevant to the goals, but also authentic, or meaningful beyond the context of the goals (Wiggins & McTighe, 2005). I first determined that the curriculum had two performance tasks:

1. Students will make an individual decision about an environmental issue and explain how they made it.
2. Students will participate in a group deliberation about an environmental issue and reflect on the quality of the process.

Then, I determined that it had two other forms of relevant and authentic evidence:

1. Students will make additional individual and group decisions about environmental issues and other issues throughout the week.
2. Students will keep a journal in which they respond to prompts about democratic decision making and environmental issues throughout the week.

The acceptable evidence aligned with some of the study's methods, particularly semi-structured interviewing, focus group interviewing, artifact analysis, and participant observation; however, informal and formal educators without research experience would still be able to collect and analyze it. It did not include graded assessments like tests or essays, but educators required to grade students could modify or add to it.

***Learning plan.*** I then created a learning plan to achieve the desired results as well as the summer camp curriculum's other desired results, which I determined to be each camp plan's objectives. The learning plan was a framework to which I applied original or modified lessons from the existing camp curriculum as well as best practices from other sources. Given that I had rooted the results in the theory of multispecies communicative democracy, I rooted the framework in the practices of multispecies communicative democracy:

1. *Identify the stakeholders* by first learning about the situation and then listing as many of the humans, nonhuman animals, and ecosystems that it affects in a certain amount of time.
2. *Invite the participants* by (a) grouping the stakeholders by perspective, species or other group, or type, (b) adopting the principle of universal consideration to be open to inviting a member of any stakeholder group, and (c) using the theory of preference utilitarianism to invite one member of each of those stakeholder groups whose ability to meet their basic and extended interests the situation most affects, up to a certain number of participants.
3. *Select the representatives* for the nonhuman stakeholders by (a) searching for scientists, activists, or other people who have extended experience interacting with or observing the stakeholders, scientific understandings of them, and holistic understandings of how they flourish, and (b) selecting the people who meet or most closely approach these standards.
4. *Choose the setting* for the deliberation by (a) if possible, deliberating in the ecosystem stakeholders, (b) if possible, deliberating when the nonhuman animal stakeholders are present in the ecosystem, and (c) if one or both is not possible, filling the setting with photographs, videos, or other representations of the nonhuman animal and ecosystem stakeholders.
5. *Deliberate* by (a) introducing the situation, (b) ensuring that all of the stakeholders are present, (c) giving them the opportunity to greet one another, (d) giving each stakeholder the opportunity to share their positions through the exchange of rational arguments, rhetoric, or narratives, and (e) having the representatives of stakeholders unable to fully deliberate mediate their constituents' participation.

6. *Make a decision* by (a) if possible, reaching a consensus, and (b) if not possible, weighting human, nonhuman animal, and ecosystem stakeholders' votes to give marginalized groups special representation and voting.
7. *Reflect on the decision and deliberation* by (a) sharing opposition to the decision with other stakeholders and representatives, (b) communicating the decision and statements of opposition to the constituents, and (c) planning a follow-up deliberation at a certain time in the future.

The framework had five units:

1. *What is the issue?* I would introduce my students to the steps of deliberative democracy and multiple authentic environmental issues related to the camp's theme. I would then facilitate a democratic deliberation with my students to decide on an environmental issue on which to focus for the rest of the camp.
2. *Who are the stakeholders?* I would provide my students with background information about the focal environmental issue by leading lessons related to it. My students would then identify the issue's stakeholders and decide on stakeholders with whom they would individually identify.
3. *What are their perspectives?* I would provide my students with additional information about their individual stakeholders by leading science lessons. I would also help them understand their individual stakeholders' perspectives by leading role-playing lessons.
4. *Where is the common ground?* My students would create masks and prepare statements for their individual stakeholders. I would then facilitate a democratic deliberation about the issue through which my students would make a decision about it.
5. *Taking action:* My students would begin putting their decision into action. They would also reflect on the process they had engaged in over the course of the camp.

I taught each unit for one day and the whole framework in one week because the camps were all-day, weeklong camps, but educators in other contexts could vary the unit and framework timeframes.

To ensure that the curriculum achieved the camp plan's objectives, I applied original or modified lessons from the existing camp curriculum to the framework if they fit into one or more units. For example, I applied "Pond Dipping," an original lesson from the existing curriculum in which students drew samples of pond water and used magnifying glasses and dichotomous keys to identify aquatic macroinvertebrates, because it fit into the "Who are the stakeholders?" unit. I also applied lessons from other sources if they fit with one or more practices of multispecies communicative democracy and best practices of humane education, environmental decision making education, or deliberative democratic education. For instance, I applied "Council of All Beings," a lesson I modified from a role-playing workshop Fleming and Macy (2007) have led because it fit into the "Where is the common ground?" unit. I specifically applied lessons for upper elementary school students; however, educators of different age groups could modify or differentiate the lessons.

**Sharing the Curriculum with My Colleagues.** After developing the first multispecies communicative democracy curriculum, I shared it with my colleagues at RPNC during our first focus group interview and asked them for their feedback. All five of the colleagues I had interviewed during Phase 1 had agreed to participate in focus group interviews, but only Susan, Mary, and Lucy were available for this interview. All three of them approved of the curriculum and expressed excitement that I would be teaching it. For example, Susan commented, "I really liked the parts that you really outlined about considering the different stakeholders' perspectives and finding the common ground. I think that's pretty rare these days." Similarly, Lucy added, "I think this is an amazing outline for a program." All three also offered suggestions for focal environmental issues. For instance, Susan suggested the issue of recreational fishing in RPNC's ponds. Lucy, having taught

at and directed the camp for several years, added that students frequently threw human food like Cheetos into one of the ponds, and that my students could deliberate over a set of rules for feeding fish.

While they approved of the curriculum, my colleagues also offered constructive feedback on it. Regarding the desired outcomes, Susan questioned whether it would adequately teach students about sustainability. I had assumed that teaching my students to think about the ecosystems an issue would affect would incorporate sustainability, but Lucy added that "stakeholders themselves may not even be considering the long-term impacts. They may only be concerned with what's happening to the right now in this moment when the decision happens." To address this concern, we decided to add "future generations" of humans, nonhuman animals, and ecosystems to the list of stakeholders about whom to think. Lucy also questioned whether the curriculum would sufficiently prepare students to participate in deliberations, and Mary added that "being able to participate is being able to have a conversation, exchange opinions, and the best way to do that is when you are educated and you can do these things." Again, I had assumed that teaching my students the steps of deliberations would prepare them, and had overlooked that my students may struggle to have conversations and exchange opinions with one another. To address this concern, we added "following the rules of democratic decision making" to the skill elements. Finally, Lucy expressed concern about the appropriateness of the curriculum for a summer camp:

> I can see it really fitting well in a school, but one of the things that I don't know is how this fits into a camp…I see this and it definitely looks to me to be something that is very learning focused and not necessarily the summer fun freedom focus…I'm just curious to how it will fit in with the concept of summer camp.

Her question concerned me, as I had anticipated that the curriculum would tend to be learning-focused and had attempted to make it more fun and freeing by incorporating many of the existing

camp curriculum's lessons as well as other fun lessons like role-playing lessons. I explained my attempts to her, and she said that I had alleviated her concerns. Nonetheless, I remained concerned and continued thinking of ways to make the curriculum both learning-focused and fun.

Having shared the first multispecies communicative democracy curriculum with my colleagues, received feedback on it from them, and revised it, I concluded that they approved of it and prepared to teach it.

**Phase 3: Teaching, Evaluating, and Revising the First Curriculum**

To address the research sub-question, "To what extent does students' environmental decision making change when I teach the multispecies communicative democracy curriculum at RPNC's summer camp?" I taught the first multispecies communicative democracy curriculum during the "Water World" camp to the Rabbit Group of mostly fourth and fifth grade students, and I analyzed my teaching using semi-structured interviews, focus group interviews, artifact analysis, and participant observation. I then shared my findings with my colleagues at RPNC and asked for their feedback.

**Teaching the first multispecies communicative democracy curriculum.** To teach the first multispecies communicative democracy curriculum during the "Water World" camp, I first added the curriculum's desired outcomes to the camp plan's objectives of "Describe a pond ecosystem," "Explain why water is important to all life on earth," "Classify pond animals according to their characteristics," and "Interact with waterfronts and aquatic animals safely and respectfully." I then applied original or modified lessons from the camp's curriculum as well as best practices from other sources to the multispecies communicative democracy curriculum's framework. The Purple Group had eight students ranging from nine to 12 years old, and six of them participated in the study. Three of the participants were girls: Donna, Emily, and Wren. The other three participants were boys: Paul, Zach, and Wade.

***What is the issue?*** In the afternoon of the first day, I introduced my students to multispecies communicative democracy as "democratic deliberation," and I told them that they would be using it to make a decision about a problem affecting RPNC. I described democratic deliberation as "a way of making decisions about environmental problems that includes humans, nonhuman animals, ecosystems, and future generations," and I added that it had five steps: "What's the problem?" in which they would "decide on a problem"; "Who are the stakeholders?" in which they would "identify who the problem affects"; "What are their perspectives?" in which they would "put themselves into the stakeholders' paws"; "Where is the common ground?" in which they would "find what the stakeholders have in common and make a decision"; and "Let's take action!" in which they would "act and reflect on their decision." I then guided them through a deliberation in which we decided where we would go for our afternoon snack: RPNC's natural playground or its prairie. Following the snack, I facilitated another deliberation in which they decided on their focal environmental problem: how we should manage a population of goldfish who had been introduced to one of RPNC's ponds, or whether we should keep captive animals in the visitor center. The students decided to focus on how we should manage the goldfish population.

***Who are the stakeholders?*** The second day, I led a role-playing lesson called "Otter Steals Fish" (Young, Haas, & McGown, 2016), in which one of my students was a heron who had just caught three fish, and the other students were otters who were trying to steal the fish. Following the game, I connected it to the concept of stakeholders by explaining that herons, fish, and otters all lived in or near ponds and asked them to think of who else could be stakeholders in the focal issue. I then facilitated a "daily deliberation" in which they decided how much unstructured play time they should have each day.[20] They decided that they should have as much unstructured play time as

[20] Originally, I had not planned on facilitating a deliberation on this topic; however, following our Monday afternoon deliberation, one of my students (Zach) had asked me if we could

structured lesson time, at which point I asked them if they had included me as a stakeholder and thought about how having so little structured lesson time would affect me. Ultimately, we decided to increase the amount of unstructured play time by having it in closer locations, thereby minimizing the travel time.

In the afternoon, I led a lesson called "Bio Blitz" in which my students used journals, field guides, binoculars, and magnifying glasses to list as many nonhuman animals as possible who lived in or near the pond with the goldfish population. Following the lesson, they compiled their lists. I then facilitated another deliberation in which they decided who the stakeholders were in the focal issue. They decided that the stakeholders included people who wanted the goldfish to stay in the pond, people who wanted to remove them from the pond, the goldfish, the other animals who lived in the pond, the pond ecosystem, and future generations.

***What are their perspectives?*** The third day, I led a team-building game called "Charlie and the Chocolate River," in which my students had to use "paper plate marshmallows" to cross a "chocolate river."[21] Following the game, I tried to spontaneously connect it to the concept of perspectives by noting that some of them had suggested different ways of crossing the river, and that all of the ways could have worked. I then facilitated a daily deliberation on whether students should be allowed to fish in RPNC's ponds. They did not make a decision, but did identify students, educators, and the fish as stakeholders.

In the afternoon, I led a lesson called "Animal Observations" in which my students observed a common snapping turtle who lived in an aquarium in the visitor center and observed the

---

have a deliberation on it. I was somewhat uncomfortable having a deliberation on the topic, but I thought it was a promising opportunity to deliberate about an authentic issue.

[21] I had not planned on leading this game; however, earlier that morning, one of my student (Zach) had asked me if we could play it. I had been planning on leading another role-playing game, but I did not want to say no to a game that I knew the students would enjoy because of my study.

goldfish in the pond. I had them write journal entries in which they recorded the nonhuman animals' behaviors, imagined what they were thinking, and then wrote journal entries from their perspectives. I also led two role-playing lessons: "Food Webs," in which they were individual plants and nonhuman animals connected by a rope with which they were trying to support a weight; and "Ecosystem Tag," in which they were plant and nonhuman animal populations in a pond ecosystem growing and declining in a dynamic equilibrium. In both games, an introduced species made their tasks much more challenging: in "Food Webs," the introduced individual removed some other individuals from the food web; and in "Ecosystem Tag," the introduced population had an unfair advantage over the other populations. Following the game, I explained that introduced species could affect real ecosystems in similar ways. I then facilitated another deliberation in which they decided who their individual stakeholders would be. They decided that my intern would represent people who wanted the goldfish to stay in the pond and people who wanted to remove them from the pond, as representing people would be less exciting and more challenging than representing nonhuman animals, ecosystems, or future generations; Wade would represent the goldfish; Zach would represent the other animals; Paul and Wren would represent the pond ecosystem, as representing an ecosystem would be more challenging than representing nonhuman animals; and Donna and Emily would represent future generations, which would also be challenging.

***Where is the common ground?*** The fourth day, I led a lesson called "Swim Goldfish, Swim!" in which one of my students was a fisherperson, and the other students were goldfish who would have to swim from one hiding place to another without being caught. Following the game, I connected it to the concept of perspectives by explaining that fishermen and fish experienced fishing differently.[22] I then began leading the lesson "Council of All Beings," in which students

[22] I had initially planned on leading this lesson the previous day, as it connected to the concept of perspectives.

created masks to represent their individual stakeholders and wrote statements as their individual stakeholders. I told them that they would be wearing their masks and sharing their statements during a formal deliberation called the Council of All Beings that afternoon.

That afternoon, I brought my students to a sitting area near the pond in which the goldfish were living, asked them to put on their masks, and welcomed them to the Council of All Beings. Following the practices of multispecies communicative democracy, they greeted one another as representatives of their stakeholders, shared their positions on the issue by reading their statements, and attempted to reach a consensus on the issue. Ultimately, the representatives reached the consensus that RPNC staff would attempt to nonlethally remove the goldfish from the pond by catching them with nets and having students and other visitors adopt them. However, they also recognized that they may not be able to catch all of the goldfish or have visitors adopt all of them, and all of the representatives, including the goldfish, also agreed that the RPNC staff could lethally remove the goldfish if necessary. Additionally, they agreed that the RPNC should create and post signs informing visitors about the adverse effects of introducing goldfish and other nonnative species to ecosystems.

***Let's take action!*** The fifth day, I helped my students draft the signs informing visitors about the adverse effects of introducing goldfish and other nonnative species to ecosystems. I also helped them prepare a presentation to give to RPNC's education manager about the signs and their plan to nonlethally remove the goldfish from the pond, if possible, and lethally remove them, if necessary. I then invited the education manager to join my students and I and listen to their presentation. Following the presentation, she asked them some questions that inspired them to reflect on their decision. For example, she asked them how they had estimated the number of individual goldfish in the pond and how they would determine when they had caught enough goldfish that the population would not regrow. She also gave them permission to submit the draft

signs to the RPNC staff to prepare them for publication, and I agreed to use some of my research funding to publish them.

**Evaluating my teaching of the curriculum.** After teaching the curriculum, I transcribed the semi-structured and focus group interviews and coded them using hypothesis coding. Given my hypothesis that students would be more likely to use the practices of multispecies communicative democracy to make decisions about environmental issues after I had taught the curriculum, I coded the interviews for evidence that they were using the practices. I used my students' journals and my field notes to triangulate my findings.

Before teaching the curriculum, I asked my students to make a decision about whether RPNC staff should cut down trees in the natural playground and explain their decision. Although they made different decisions, all six students mentioned other people when they explained their decisions about whether to cut down trees in the natural playground. For example, Paul said that the RPNC staff should cut down more trees in the playground because "I know a lot of kids who absolutely love climbing." Two students, Emily and Zach, also mentioned nonhuman animals and ecosystems. For instance, Emily said they staff should not cut down any trees because "it makes survival easier for animals and us. It'd help animals live more lives and give them shelter." One student, Zach, explicitly mentioned a decision making process he had previously learned in school:

> I took steps. I identified the problem, then I thought of the underlining [*sic*] problem like the problem of we need more space. And then I thought of a way to…darn I just lost it…I thought of a way to solve this problem by thinking of the best alternative other than cutting down the forest. And then I went back and checked my steps.

No other students explicitly mentioned a decision making process, even after I asked them how they had made the decisions. A common response to my question was "I thought about it" (Wren).

After I teaching the curriculum, I asked my students to make another decision about whether RPNC staff should build a new visitor center in the prairie. Again, all six students mentioned other people when they explained their decisions about whether to build a new visitor center in the prairie. Emily and Zach also mentioned nonhuman animals and ecosystems. However, no other students mentioned nonhuman animals or ecosystems. Notably, Zach used the process of multispecies communicative democracy to make his decision instead of the previous process he had used. When I asked him why he had changed processes, he said

> I think I don't see that anymore as much because that is more for like global very big problems and this is just a smaller problem in our community. So yeah, this is a lot easier to explain than that other one. So this week I learned about stakeholders and common ground. (Zach)

Paul said that he "took steps to have empathy for other people, but did not think of other stakeholders. No other students mentioned multispecies communicative democracy or any of its steps.

After I asking my students to explain their decisions about whether RPNC staff should build a new visitor center, I asked them more general questions about their experience. Surprisingly, all six students said they had gotten better at making decisions about environmental issues. Moreover, when they explained why, they mentioned steps of multispecies communicative democracy. For example, Paul explained that he had learned about

> the different kinds of species and how they like act so like the choices means like not killing anything because once you learn about them and get used to them then they're not as bad as you think probably.

Wade described how making an actual decision had helped him learn:

> Yeah I think I got a little better. I knew a lot of the stuff from school, like how to make charts and that kind of stuff. I don't know, it was good actually doing it…Like at school, we just made the charts for grades. Here, we actually made them for a purpose.

While I did not have enough data to draw conclusions about the curriculum's general effectiveness, I noted that most of my students could remember steps of multispecies communicative democracy, but only one had used it without prompting.

**Sharing my findings with my colleagues.** After analyzing my teaching of the first multispecies communicative democracy curriculum, I shared my findings with my colleagues at RPNC during our second focus group interview and asked them for their feedback. Susan and Lucy were available for the interview. I first gave them an overview of the Water World camp and then shared my findings, particularly my finding that while I most of my students could remember steps of multispecies communicative democracy, only one of them had used the process without prompting. Both Susan and Lucy offered explanations about what may have happened and suggestions for how I could help them use the process of multispecies communicative democracy without prompting. For example, Susan explained that teaching empathy was challenging and took time: "I don't know, I think that's hard for a lot of adults to do, to tell you the truth. I mean, they can do it, but they have to really concentrate." Lucy added, "I think that developmentally, it's an emerging skill for sure." Together, we decided that one helpful revision to the curriculum would be to further scaffold students' empathy development by explicitly modeling showing empathy for other people, nonhuman animals, and ecosystems. Another revision would be to teach empathy indirectly by reading and discussing stories in which characters had opportunities to show it. Lucy extended these revisions to the process of multispecies communicative democracy more broadly:

> Maybe be a little bit more intentional during your group deliberations during the week about guiding them on which stakeholders to include and kind of put your thumb on the scale a

little bit more with those group discussions where it's just getting them started learning about the process because I can see how with playing the war game [a game they had played during their unstructured play time] they decided, "Oh, well we'll just go collect our sticks from somewhere else to make our forts bigger,"…talking about who might be using those sticks.

Having shared the first multispecies communicative democracy curriculum with my colleagues, received feedback on it from them, and revised it, I prepared to teach it during the next camp.

**Phase 4, 5, and 6: Iteratively Teaching, Evaluating, and Revising the Curriculum**

I repeated the process of teaching, evaluating, and revising the multispecies communicative democracy curriculum during four more camps: Natural Art, Creepy and Slimy, The Magic of Flight, and Warm and Fuzzy. While I revised the curriculum after each phase, I did not change its general structure. I always taught it to the Rabbit Group of mostly fourth and fifth grade students. In total, I taught the curriculum to 32 students who ranged in age from seven to 12 years. Of these students, 26 participated in the study. Of these 26 students, six attended multiple camps. Eleven were boys and fifteen were girls.

Through this iterative process, I drew the following conclusions about the curriculum:

1. My students were more likely to use the process of multispecies communicative democracy without being prompted if I explicitly modeled each step of the process with them.
2. My students were also more likely to use the multispecies communicative democracy without being prompted if they had multiple authentic opportunities to practice its steps during the week.

3. Despite the benefits of modeling and practice, my students tended to become exhausted with having multispecies communicative democracy modeled for them or using it themselves and disengage from it before the steps were complete.
4. Therefore, teaching the curriculum entailed "walking a line" between giving students enough opportunities to have multispecies communicative democracy modeled for them and practice it themselves that they would be able to use it without being prompted, on one side, and giving them so many opportunities that they would become exhausted and disengage from it.
5. One effective way to walk the line was to teach the steps of multispecies communicative democracy separately throughout the week and then put them together at the end of the week. Another was to teach the steps indirectly through role-playing games like "Swim Goldfish, Swim," through which students imagined the experiences of goldfish being fished. A third was to teach them indirectly through stories like *Seven Blind Mice,* through which students learned that no individual can have a complete perspective on an issue, and multiple perspectives often lead to more effective decisions.

Given my study's focus on teaching the curriculum at RPNC's summer camp, I cannot conclude that teaching it at a nature center or in another informal educational context would be more or less effective that teaching it at a school. On the one hand, teaching it at the camp gave my students and I the opportunity to address authentic environmental problems over the course of a week, whereas teaching it in a school may make addressing such problems more difficult and would make addressing them take longer. On the other hand, extending the curriculum over the course of multiple weeks or months may help address the issue of repetition and exhaustion. Coincidentally, one of my students' parents was an administrator for a local school system, and she expressed interest in using the curriculum in her system.

## Next Steps

At the end of my research, I met with RPNC's education manager to discuss the final multispecies communicative democracy curriculum and how RPNC's other educators could use it. She expressed some concern that teaching it as I had would be challenging for the counselors at the next summer camp, as most of RPNC's camp counselors have limited teaching experience. Moreover, I am the only counselor who has experience facilitating discussions with elementary students. Our conversation prompted me to reflect on the quality standards for action research: the validity criteria of outcome, process, democratic, catalytic, and dialogic validity. Throughout the study, I had made efforts to ensure the study's outcome, process, and democratic validity, but I had not thought as much about its catalytic validity. Put differently, I had focused on whether the study was helping students make decisions about environmental issues, whether it was relevant to my colleagues, and whether I was including all of it stakeholders. However, I had looked less at whether the educators in a position to teach the curriculum at the nature center would be moved to teach it. That said, the experience speaks to the cyclical nature of action research. Rather than being a one-time process, it is an ongoing cycle characterized by constant reflection and next steps.

# APPENDICES

Appendix A: Protocol for Individual Interviews with Adults

**Introduction**

Hello, and thank you for agreeing to this interview! My name is Stephen Vrla, and I'm a PhD candidate studying environmental education. I'm also a part-time educator at RPNC.

In this interview, I'll be asking you some questions about environmental education. To help me remember your answers, I'll be audio recording the interview. Is that okay? (If yes, start recording.)

**Opening Questions**

To start the interview, I'll ask you some opening questions about your position at RPNC.

1. What is your position at RPNC?
2. What does that position entail?

**Environmental Education Questions**

Now, I'll ask you some general questions about your experience as an environmental educator.

1. Do you consider yourself an environmental educator?
2. How long have you been an environmental educator?
3. Tell me how you became an environmental educator. (Tell me how you came to be here at RPNC as an environmental educator?)
4. Why did you become an environmental educator?
5. Tell me about your past positions, if any, as an environmental educator.
6. Why did you choose those positions, if any?
7. Tell me more about your position as an environmental educator at RPNC.
8. Why did you choose this position?
9. In your opinion, what are RPNC's goals as a nature center? In other words, what lessons does RPNC want to teach people about the environment and humans' relationship with the environment?
10. What are your goals as an environmental educator? In other words, what lessons do you want to teach your students about the environment and humans' relationship with the environment?
11. What have you done to accomplish your goals as an environmental educator?
12. What challenges have you faced in accomplishing your goals as an environmental educator?

**Environmental Decision Making Questions**

Now, I'll ask you some questions about environmental decision making and how you have or would teach your students to make environmental decisions.

1. In your opinion, what does environmental decision making mean?
2. What should environmental decision making look like?

3. Whose interests should be included in environmental decision making?
4. How should these stakeholders' interests be included in environmental decision making?
5. Have you taught environmental decision making in the past?
6. What methods, if any, have you used to teach environmental decision making in the past?
7. What challenges, if any, have you faced in teaching environmental decision making in the past?
8. Have you taught environmental decision making at RPNC?
9. What methods, if any, have you used to teach environmental decision making at RPNC?
10. What challenges, if any, have you faced in teaching environmental decision making at RPNC?
11. Regardless of whether you've ever taught environmental decision making, what methods do you think would be most effective for teaching environmental decision making?
12. What should be the goal of an environmental decision making curriculum?

**Closing Questions**

My co-researchers and I are developing an environmental decision making curriculum.

1. Is there anything else you'd like to add?
2. Would you be willing to participate in a focus group interview with some of RPNC's other administrators and educators to give us feedback on the curriculum?

Appendix B: Protocol for Focus Group Interviews with Adults

## Introduction

Hello, and thank you for agreeing to participate in this focus group interview! My name is Stephen, and I'm a PhD candidate studying environmental education. I'm also a part-time educator at RPNC.

In this interview, I'll be sharing an environmental decision making curriculum with you and asking for your feedback on it. (Follow-up interviews only: I'll also be reporting my findings about our summer camp's impacts on students' environmental decision making and asking for your feedback on them.) To help me remember your feedback, I'll be audio recording the interview. Is that okay? (If yes, start recording.)

## Opening Questions

To start the interview, let's introduce ourselves.

1. What is your name?
2. What is your position at RPNC?

## Curriculum Questions

Now, I'll hand out the environmental decision making curriculum and give you some time to review it. (Wait until Interviewees have reviewed the curriculum.) Now that you've had a chance to review the curriculum, I'd like to ask you some questions about it.

1. Do you have any questions about the curriculum?
2. Given the curriculum's goal, what are its strengths, if any? In other words, in what ways is it likely to accomplish its goal?
3. How can the curriculum be improved? In other words, in what ways is it unlikely to accomplish its goal, and what changes would make it more likely to accomplish its goal?
4. Should the curriculum's goal be updated? If so, what should it be?

## Report Questions (Follow-up Interviews Only)

Now, I'll hand out a report on our summer camp's impacts on children's environmental decision making and give you some time to review them. (Wait until Interviewees have reviewed the report.) Now that you've had a chance to review the report, I'd like to ask you some questions about it.

1. Do you have any questions about the report?
2. To what extent can the report inform the environmental decision making curriculum I am developing?

## Closing Questions

My co-researchers and I will be using your feedback to revise the curriculum.

3. Is there anything else you'd like to add?
4. Would you be willing to participate in another focus group interview to give us more feedback on the curriculum?

## Appendix C: Protocol for Pre-Camp Interviews with Campers

The RPNC staff have noticed that the natural playground gets very crowded at lunch. They're thinking about making the playground bigger by cutting down some of the trees surrounding it and replacing them with new stations. To help make a decision, they're asking campers for recommendations on what they should do.

1. What would you recommend that the RPNC staff do?
2. Why do you think that is the best decision?
3. How did you reach your decision?

## Appendix D: Protocol for Post-Camp Interviews with Campers

The RPNC staff have noticed that the visitor center gets very crowded during the day. They're thinking about adding more indoor space by removing some of the plants in the prairie and replacing them with a new building. To help make a decision, they're asking campers for recommendations on what they should do.

1. What would you recommend that the RPNC staff do?
2. Why do you think that is the best decision?
3. How did you reach your decision?

# WORKS CITED

# WORKS CITED


Anderson, G. L., Herr, K.G., & Nihlen, A. S. (2007). *Studying your own school: An educator's guide to practitioner action research* (2nd ed.). Thousand Oaks, CA: Corwin Press.

Arbour, R., Signal, T., & Taylor, N. (2009). Teaching kindness: The promise of humane education. *Society & Animals, 17*(2), 136–148. doi: 10.1163/156853009X418073

Ascione, F. R. (1997). Humane education research: Evaluating efforts to encourage children's kindness and caring toward animals. *Genetic, Social and General Psychology Monographs, 123*(1), 57–77.

Balint, P. J., Stewart, R. E., Desai, A., & Walters, L. C. (2011). *Wicked environmental problems: Managing uncertainty and conflict.* Washington, DC: Island Press.

Bastian, M. (2017). Towards a more-than-human participatory research. In M. Bastian, O. Jones, N. Moore, & E. Roe (Eds.), *Participatory research in more-than-human worlds* (pp. 19–37). New York, NY: Routledge.

Bogdan, R. C., & Biklen, S. K. (2007). *Qualitative research for education: An introduction to theory and methods* (5th ed.). Boston, MA: Pearson.

Bradbury, H. (2015). Introduction: How to situate and define action research. In H. Bradbury (Ed.), *The SAGE handbook of action research* (pp. 1–9). Thousand Oaks, CA: Sage.

Castellano, M, de Luca, A. Q., & Sorrentino, M. (2011). The interface of environmental and humane education as an emerging and relevant dialogue: A point of view from Brazil. *Canadian Journal of Environmental Education, 16,* 93–105.

Clark, A. (2004). The Mosaic approach and research with young children. In V. Lewis, M. Kellett, C. Robinson, S. Fraser, & S. Ding (Eds.), *The Reality of Research with Children and Young People* (pp. 142–161. London, UK: Sage.

Dewey, J. (1944). *Democracy and education: An introduction to the philosophy of education.* New York, NY: The Free Press.

Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annual Review of Environment and Resources, 30,* 335–372. https://doi.org/10.1146/annurev.energy.30.050504.144444

Edelson, D. C., Tarnoff, A., Schwille, K., Bruozas, M., & Switzer, A. (2006). Learning to make systematic decisions. *The Science Teacher, 73*(4), 40–45.

Englund, T. (2006). Deliberative communication: A pragmatist proposal. *Journal of Curriculum Studies, 38*(5), 503–520. doi: 10.1080/00220270600670775

Fleming, P., & Macy, J. (2008). Guidelines for a Council of All Beings workshop. In J. Seed, J. Macy, P. Fleming, and A. Naess (Eds.), *Thinking like a mountain: Toward a Council of All Beings* (pp. 97–113). Gabriola Island, BC: New Catalyst Books.

Freeman, M., & Mathison, S. (2008). *Researching children's experiences*. New York, NY: Guilford Press.

Glesne, C. (2010). *Becoming qualitative researchers: An introduction* (4th ed.). Reading, MA: Pearson.

Harris, C., Notin, K., & Berkowitz, A. (2016). ECO-CHOICES: Understanding the complex consequences of local decisions. *Science Scope, 39*(5), 43–50.

Herr, K. G., & Anderson, G. L. (2015). *The action research dissertation: A guide for students and faculty* (2nd ed.). Thousand Oaks, CA: Sage.

Kalof, L., Zammit-Lucia, J., Bell, J., & Granter, G. (2015). Fostering kinship with animals: Animal portraiture in humane education. *Environmental Education Research, 22*(2), 203–228. https://doi.org/10.1080/13504622.2014.999226

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The action research planner: Doing critical participatory action research*. Singapore: Springer.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Research, 8*(3), 239–260. https://doi.org/10.1080/13504620220145401

Kuhl, G. J. (2011). Representing animal-others in educational research. *Canadian Journal of Environmental Education, 16,* 106–122.

LeCompte, M. D., & Ludwig, S. A. (2013). Defining, collecting, cataloging, and analyzing artifacts. In J. J. Schensul & M. D. LeCompte (Eds.), *Specialized ethnographic methods: A mixed methods approach* (2nd ed.) (pp. 1–49). Lanham, MD: AltaMira Press.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Merskin, D., & Durham, D. (2015). Expanding reach and justice with PAR: Working with more than humans. In H. Bradbury, *The SAGE Handbook of Action Research* (3rd ed.) (pp. 583–592). Los Angeles, CA: Sage.

Miles, M. B., Huberman, A. M, & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: Sage.

National Council for the Social Studies. (2013). *The College, Career, and Civic Life (C3) Framework for social studies state standards: Guidance for enhancing the rigor of K-12 civics, economics, geography, and history*. Retrieved from https://www.socialstudies.org/sites/default/files/c3/C3-Framework-for-Social-Studies.pdf

NGSS Lead States. (2013). *Next Generation Science Standards: For states, by states*. Retrieved from https://www.nextgenscience.org/search-standards

Nicoll, K, Trifone, C., & Samuels, W. E. (2008). An in-class, humane education program can improve young students' attitudes toward animals. *Society & Animals,* 16(1), 45–60. doi: 10.1163/156853008X269881

Papadouris, N. (2012). Optimization as a reasoning strategy for dealing with socioscientific decision-making situations. *Science Education, 96*(4), 600–630. https://doi.org/10.1002/sce.21016

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Thousand Oaks, CA: Sage.

Samuels, W. E., Meers, L. L., & Normando, S. Improving upper elementary students' humane attitudes and prosocial behaviors through an in-class humane education program. *Anthrozöos, 29*(4), 597–610. https://doi.org/10.1080/08927936.2016.1228751

Samuelsson, M. (2016). Education for deliberative democracy: A typology of classroom discussions. *Democracy & Education 24*(1), Article 5.

Samuelsson, M., & Bøyum, S. (2015). Education for deliberative democracy: Mapping the field. *Utbildning & Demokrati, 24*(1), 75–94.

Schensul, J. J., & LeCompte, M. D. (2012). *Essential ethnographic methods: A mixed methods approach.* Lanham, MD: AltaMira Press.

Switzer, A. C. (2009). *Assessing changes in high school students' environmental decision-making skills: Some methodological contributions.* (Unpublished doctoral dissertation). University of Michigan, Ann Arbor, MI.

Weasel, L. (2017). From deliberative democracy to communicative democracy in the classroom. A response to "Education for Deliberative Democracy." *Democracy & Education, 25*(1), Article 8.

Weil, Z. (2004). *The power and promise of humane education.* Gabriola Island, BC: New Society Publishers.

Westheimer, J. (2015). *What kind of citizen? Educating our children for the common good.* New York, NY: Teachers College Press.

Wiggins, G., & McTighe, J. (2005). *Understanding by design* (Expanded 2nd ed.). Upper Saddle River, NJ: Pearson.

Young, J., Haas, E., & McGown, E. (2016). *Coyote's guide to connecting with nature* (2nd ed.). Santa Cruz, CA: OWLink Media Corporation.

# CHAPTER 5: CONCLUSION

> "The difficulty lies in the very expression 'relation to the world,' which presupposes two sorts of domains, that of nature and that of culture, domains that are at once distinct and impossible to separate completely."
>
> —Bruno Latour, *Facing Gaia: Eight Lectures on the New Climatic Regime,* p. 15

In opening this dissertation, I noted its rootedness in Latour's (2004) prediction that "[t]o limit the discussion to humans, their interests, their subjectivities, and their rights, will appear as strange a few years from now as having denied the right to vote of slaves, poor people, or women" (p. 69). In closing it, I add that one of its fruits, or key insights, is a development of Latour's (2017) above argument. As Latour (2017) notes, the expression "relation to the world" (p. 15) is an example of the presupposition that nature and culture are separate. This presupposition is a social construct. As a social construct, it has been very influential. Indeed, the presupposition that nature and culture are separate is largely responsible for the ecological crisis. However, it is not immutable. One way to change the presupposition is through multispecies communicative democracy (MCD).

## Multispecies Communicative Democracy and the Inseparability of Nature and Culture

When many people make democratic decisions, they tend to exclude nonhuman animals, ecosystems, and other nonhuman stakeholders from the decision-making process. The socially constructed separation of nature and culture helps explain people's tendency to exclude nonhuman stakeholders from democratic decision-making processes. It suggests that democratic decision making, and democracy in general, are part of culture, while nonhuman animals, ecosystems, and other nonhuman stakeholders are part of nature. Therefore, people cannot and should not include them in decision-making processes.

Each core chapter of the dissertation has offered a vision of how multispecies communicative democracy (MCD) can help people recognize the inseparability of nature and culture. In the first core chapter, I theorized MCD as a theory for including nonhuman stakeholders in democratic decision making. MCD can help people recognize that democratic decision-making and nonhuman stakeholders are inseparable by first showing them that they should include nonhuman stakeholders in decision-making processes, and then that they can. It shows people that they should include nonhuman stakeholders in decision-making processes by emphasizing that a decision is only legitimate if all those who are affected by it are included in the decision-making process (Young, 2000). As nonhuman stakeholders can be affected by decisions, they should be included in decision-making processes. MCD then shows people that they can include nonhuman stakeholders in decision-making processes by decentering human symbolic communication as one form in a much broader spectrum of communication (Kohn, 2013). By adopting this decentered understanding of communication, people can include nonhuman stakeholders in decision-making processes. In other words, MCD offers people a way of seeing inclusion and communication through which nature and culture are inseparable.

In the second core chapter, I investigated the US American public's support for MCD and the factors influencing their support. Through my investigation, I found that people who were shown a photograph of deer were more likely to support including a human representative for deer in a decision-making process. To be sure, the influence of being shown the photograph on people's level of support was less than the influence of other factors. That said, it suggests that nonhuman animals already do participate in decision-making processes. After all, the photograph of the deer was itself a representation of deer. As such, it communicated the deer's position about being included in the decision-making process. As the finding shows, the deer's position influenced people's decision about including them. Whereas the theory of MCD offers a logical way of seeing

the inseparability of nature and culture, the photograph's influence gives a practical glimpse of their inseparability.

In the third core chapter, I developed, implemented, and analyzed a MCD curriculum at a nature center's summer camp. To describe the vision this chapter offers, I return to the vignette with which I began it. As we removed a house sparrow's eggs from an Eastern bluebird nest box, my students and I saw the house sparrow flying overhead. We had not invited her to our earlier deliberation, during which we had decided to remove the eggs; however, as she flew overhead, she was forcing us into a new deliberation. Unexpectedly, I literally and figuratively saw her position that the eggs in our hands were her children, and that she did not approve of our stealing them. In that moment, I no longer cared that the organization sponsoring the nest boxes had recommended that we remove sparrow eggs, and that trapping and euthanizing baby and adult house sparrows was even acceptable. I did not return the eggs, but I do not think I will remove eggs from a nest box again. Looking back on my experience teaching the MCD curriculum, that moment stands out as the most memorable one. In it, I found part of an answer to a question I had not directly asked, but that has guided my whole research process. The question is, "What happens when we presuppose that nature and culture are not separate, and that nonhuman animals and ecosystems are as much a part of our democracy as other humans?" The answer, or at least part of it, is that we begin to see the separation of nature and culture as a social construct, and get a glimpse of the world behind the construct.

**Multispecies Communicative Democracy and Mini-Publics**

Just as each core chapter has offered a vision of how multispecies communicative democracy (MCD) can help people recognize the inseparability of nature and culture, so too does the dissertation as a whole offer a pathway toward challenging the socially constructed separation of culture from nature. To describe this pathway, I begin with Dewey's (1954) theory of participatory

democracy. To Dewey (1954), democracy begins when individuals recognize that their actions have direct and indirect consequences on other individuals. When a group of individuals recognizes these consequences, they become a "public" (Dewey, 1954, p. 3). To maintain the public, this group of individuals must constantly communicate with one another (Dewey, 1954). Over time, this constant communication expands their identities:

> Wants and impulses are then attached to common meanings. They are thereby transformed into desires and purposes, which, since they implicate a common or mutually understood meaning, present new ties, converting a conjoint activity into a community of interest and endeavor. (Dewey, 1954, p. 153)

Barber (2004) adds that it can create new social norms by "enlarg[ing] the understanding and the sympathies of interest-motivated individuals and transform[ing] them into citizens capable of reassessing themselves and their interests in terms of the newly invented communal norms and newly imagined public goods" (p. 173). Dewey's (1954) theory of participatory democracy and Barber's (2004) addition suggest that as people participate in MCD, their identities will expand from themselves to other people, nonhuman animals, and ecosystems, and social norms will follow. That is, people will come to recognize that decisions that benefit their multispecies community also benefit themselves, and they will normalize including nonhuman stakeholders in decision making processes.

Participatory democracy can occur at both large and small scales. In "Mini-Publics and Deliberative Democracy," Setälä and Smith (2018) describe a "mini-public" as an institution that "creates a space within which a diverse body of citizens who would not otherwise interact is selected randomly to reason together about an issue of public concern" (p. 300). They then demonstrate how the decisions mini-publics make can transfer to the larger public through mechanisms like citizens' juries and deliberative polls (Setälä & Smith, 2018). While Setälä and Smith (2018) do not focus on

educational institutions like nature centers and schools, these institutions approach the description of mini-publics. My students at the nature center's summer camp may not have been selected randomly, but they were a diverse body of citizens who would not have otherwise interacted and who were reasoning together about an issue of public concern. A class of students at a public school may even more closely approach a mini-public.

The decisions that an educational institution's mini-public makes may not be transferrable to the larger public, but the identities and norms the mini-public creates can be. In "Changing Stories: Trajectories of Identification Among African American Youth in a Science Outreach Apprenticeship," Polman and Miller (2010) offer an example of this process. They describe an informal education program in which "underserved teenagers" (Polman & Miller, 2010, p. 887) learned about science, mathematics, and technology and then work with educational institutions to facilitate events and activities. By having the teenagers work in educational institutions, the program created an "intentional borderland" (Polman & Miller, p. 885) in which the teenagers took on professional identities and experienced workplace norms they may not have encountered otherwise. Polman and Miller (2010) found that some of the teenagers integrated these new identities and norms into their own narratives, thereby disrupting the effects of "limiting cultural reproduction" (p. 910) on their lives. To be sure, the authors do not address mini-publics, and the teenagers did not engage in deliberation. However, Polman and Miller's (2010) characterization of the program suggests that an educational institution practicing MCD could also be an intentional borderland in which students experience and possibly integrate identities and norms they would not otherwise encounter. It may also disrupt another form of cultural reproduction.

By intentionally including nonhuman animals and ecosystems in democratic decision making, MCD education creates experiences in which students recognize that their actions have direct and indirect consequences on nonhuman animals and ecosystems. It also gives students

opportunities to communicate about these consequences with nonhuman animals and ecosystems. In that sense, MCD education creates and maintains a multispecies mini-public. As they participate in this multispecies mini-public, the students take on the identity of multispecies democratic citizens and experience the norms of a multispecies democratic society. In that way, they become part of a multispecies borderland. The students may then integrate the identity of multispecies democratic citizen and norms of a multispecies democratic society into their own narratives before reentering the larger public. Over time, this process may lead to the institutionalization of MCD in that larger public. It may even challenge the presupposition that nature and culture are separate.

## Next Steps for Multispecies Communicative Democracy

In this dissertation, I have attempted to raise questions as much as, if not more than, determine answers. For that reason, the work I have done has many next steps. In the first core chapter, I described multispecies communicative democracy (MCD) as a theory of and set of practices for including nonhuman stakeholders in democratic decision making. However, for the sake of clarity, I limited my discussion of nonhuman stakeholders to nonhuman animals and ecosystems in that chapter and the others. To be sure, many of the principles that apply to including nonhuman animals in MCD could also apply to including other nonhuman individuals like plants, and many principles that apply to including ecosystems could also apply to including other nonhuman systems like bioregions. That said, explicitly including plants, bioregions, and other nonhuman stakeholders in MCD is an important next step. In focusing on including nonhuman stakeholders in democratic decision making, I have also implicitly treated human stakeholders as a single group when they, of course, are not. For that reason, connecting MCD with the literature on including all human stakeholders in democratic decision making and deliberative democracy is another important next step. Finally, in focusing on the present, I have overlooked the future. Numerous scholars of democratic decision making and deliberative democracy have addressed

including future generations (for example, see MacKenzie, 2018), and connecting MCD with this literature is yet another important next step.

In the second core chapter, I surveyed a nationally representative convenience sample of 600 US American adults about their level of support for MCD through proxy representation. One important next step is to survey a larger, random sample about MCD through direct participation as well as proxy representation. Another next step is to explore my findings about how people explain their level of support for MCD. If people who support MCD are more likely to explain their level of support in terms of inclusion and people who do not support it are more likely to explain their level in terms of efficiency, framing MCD differently for different people may help gain support for it. A third next step is to explore my findings about the influence of seeing a photograph of a nonhuman stakeholder on people's support for MCD through proxy representation. If seeing a photograph of a deer makes people more likely to support including deer in a decision making process, then participating in a multispecies communicative deliberation may make people more supportive of MCD. One way to investigate this possibility is to organize authentic multispecies communicative deliberations and study people's level of support for MCD before and after participating in them.

In the third core chapter, I analyzed my teaching of an MCD curriculum at a nature center's summer camp. Through the process, I gained many insights into teaching the curriculum in that context, some of which I have already shared. Sharing the other insights I gained is another next step. At the same time, one can adapt the MCD curriculum to the contexts of other educational institutions like zoos or schools. Therefore, another next step is studying what happens when one teaches the curriculum in those contexts. Finally, as I note above, nature centers, zoos, schools, and other educational institutions are both "mini-publics" (Setälä & Smith, 2018) and "borderlands" (Polman & Miller, 2010). Thus, perhaps the most important next step is investigating the potential of multispecies communicative democratic education to institutionalize MCD and transform US

American society into one in which people include nonhuman stakeholders in democratic decision making. In that sense, this dissertation as a whole is the first stage of a much larger action research project to challenge the separation of culture and nature, and of humans and other animals.

# WORKS CITED

# WORKS CITED


Barber, B. R. (2004). *Strong democracy: Participatory politics for a new age* (20th anniversary ed.). Berkeley: University of California Press.

Dewey, J. (1954). *The public and its problems*. Athens: Ohio University Press.

Kohn, E. (2013). *How forests think: Toward an anthropology beyond the human*. Berkeley: University of California Press.

Latour, B. (2004). *Politics of nature: How to bring the sciences into democracy*. Cambridge, MA: Harvard University Press.

Latour, B. (2017). *Facing Gaia: Eight lectures on the new climatic regime*. Cambridge, UK: Polity Press.

MacKenzie, M. K. (2018). Deliberation and long-term decisions: Representing future generations. In A. Bächtiger, J. S. Dryzek, J. Mansbridge, & M. E. Warren (Eds.), *The Oxford handbook of deliberative democracy* (pp. 251–270). Oxford, UK: Oxford University Press.

Polman, J. L., & Miller, D. (2010). Changing stories: Trajectories of identification among African American youth in a science outreach apprenticeship. *American Educational Research Journal, 47*(4), 879–918.

Setälä, M., & Smith, G. (2018). Mini-publics and deliberative democracy. In A. Bächtiger, J. S. Dryzek, J. Mansbridge, & M. E. Warren (Eds.), *The Oxford handbook of deliberative democracy* (pp. 300–314). Oxford, UK: Oxford University Press.

Young, I. M. (2000). *Inclusion and democracy*. Oxford, UK: Oxford University Press.