The Importance of Discovery Park's Relative Wildness in the Urban Landscape: History, Human-Nature Interaction, and Just Management

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A thesis

submitted in partial fulfillment of the

requirements for the degree of

Master of Science

University of Washington

2019

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Program Authorized to Offer Degree:

Environmental and Forest Sciences

University of Washington

Abstract

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Discovery Park – Seattle's largest park spanning 534 acres – has repeatedly been the subject of debates over how to justly manage its vast amount of open green space, specifically in terms of whether or not to allow some form of urban development within or around the park. Proponents for such development argue that much of Discovery Park is underutilized space and could provide more than its current benefits to the community if its use were different. Those who oppose Discovery Park's development claim that any such disturbance would be in direct contradiction to the park's Master Plan, which calls for the park to be an "open space of quiet and tranquility" for the community.

The unfolding debate over Discovery Park's management is a microcosm of larger environmental and societal problems that are perpetuated by norms of human domination within

capitalist cultures, in which those who support these systems that uphold these lingering colonialist norms (whether intentionally or not) continue to maintain lifestyles that oppress other humans and non-human nature. Those involved in the debate, however, have overlooked the global context and significance of these underlying ethical issues that should have guided their efforts for the balanced management of Discovery Park. For example, the long and recent history of oppression (over Indigenous people and their land) at Discovery Park stands in direct contrast to a space deemed "quiet" and "tranquil" by its Master Plan, and the general lack of attention to this history illuminates a problem in which historical norms of colonization and domination are left unconfronted, and therefore remain structurally embedded within capitalistic cultures and societies and subtly influence the ways in which people value and interact with humans and non-human nature today.

In order to better guide efforts that seek justice for both humans and non-human nature through changes in land management, this thesis will respectively discuss the implications of Discovery Park's past, present, and future use through: 1) outlining a history of Discovery Park's indigeneity and colonization, discussing why a just outcome must also involve diversifying the voices, values, and perspectives that are represented in these land-use decisions, 2) applying an Interaction Pattern Approach to characterize and quantify the ways in which current people use Discovery Park, investigating claims of the park's utility through obtaining and coding narrative data of 320 participants who described meaningful interactions with nature in the park, and 3) exploring how maintaining "relatively wild" forms of nature, as seen in places like Discovery Park, could actually unite competing environmental and social claims for local and global justice through its potential ability to afford more meaningful and relational human-nature interactions, in turn

deconstructing colonialist norms of domination through fostering a more virtuous society of mindfulness, care, and cooperation toward humans and non-human nature.

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Introduction

The local debate over the potential allowance of urban development within or around Discovery Park is a reflection of the misguided ways in which intersecting environmental and social issues on both local and global scales are commonly addressed. Environmental and social issues are often framed as having competing interests and goals, yet this framing can counterproductively lead to outcomes that prioritize one claim at the expense of another, ultimately distracting from the relevant ethical questions surrounding the influence of capitalism on the human-nature relationship that should inform and unite local and global efforts for justice.[1] Discovery Park sits at the heart of these intersecting efforts for justice, as it has a history of colonization and environmental degradation that stands in contrast to what is now perceived as a relatively wild landscape that some environmentalists fight to preserve in the face of continued encroaching urban development.

Situated in its historical context, the debate over Discovery Park's land-use presents an interesting case when considering the recently approved Fort Lawton Redevelopment Plan set to develop parts of the park's surrounding areas for new affordable housing units. This opportunity to achieve smaller-scale justice through housing a percentage of Seattle's homeless population created a challenging situation in which the debate over Discovery Park's management divided the community over a perceived choice between either supporting the homeless or preserving the environment, rather than exploring solutions that could support both efforts for just land management by addressing the underlying force of colonial capitalism that perpetuates both issues.

[1] While there is no single clearly agreed upon definition that distinguishes between "ethics" and "justice," I use the term "ethics" in general reference to the exploration of morality and philosophical theories of "right" and "wrong," whereas "justice" is in reference to the engagement and application of ethical theories by institutional systems to achieve fairness.

In light of the circumstances that led to this perceived choice between addressing environmental and social problems, this thesis draws upon the debate over Discovery Park to explore alternative strategies for land management that actively address the often-overlooked problem that drives these intersecting environmental and social problems. Ultimately, this thesis will provide a framework for understanding issues of justice and propose an evidence and theory-based method of encouraging human interaction with relatively wild forms of nature in order to foster a more caring, mindful, and cooperative community.

A holistic analysis of the case of Discovery Park illuminates the inherent connectedness between local and global environmental and social issues, which can better guide efforts toward justice. As this thesis will explore, there are parallels between some of the ways in which humans interact with nature and the ways in which humans interact with other humans. Focusing on systems of capitalism, there are many instances in which dominant groups of people (whether of a privileged race or social class) have exerted their power to control and exploit groups that were perceived as a lesser "other." The historical colonization of Discovery Park is one such example, where Western colonizers in 1857 sought to claim and develop land that was already a home both to Indigenous populations and to the non-human beings that were supported by that relatively wild ecosystem, which led to the further and parallel oppressions of Indigenous people and non-human nature (Discovery Park History, n.d., para. 1).

This historical oppression of nature was partly fueled by the scientific revolution and the consequential development of experimental science and capitalism, as colonizers were less bound by prior moral constraints that had once required them to live in respectful balance and relation with the earth (Merchant, 1992). As Merchant (1992) explains, "the acceleration of economic change throughout western Europe began to undermine the organic unity of the cosmos and

society… [and b]ecause the needs and purposes of society as a whole were changing with the commercial revolution, the values associated with the organic view of nature were no longer applicable" (p. 45). In other words, this shift of Western cultures toward industrial capitalism also necessitated a shift in those people's understanding of the earth's systems in order to justify commodification for the sake of profit and technological advancement; perceptions of an "organic" Mother Earth shifted along with these cultural changes, as Westerners slowly began to adopt a "mechanistic" view of nature as "inert" and controllable, given its discrete parts (Merchant, 1992). In synthesis of the various ideas and theories that were developed by Western philosophers and scientists during the 16th and 17th centuries, Merchant (1992) outlines the basic assumptions that made human domination and control over nature possible:

1. Matter is composed of particles (the ontological assumption).
2. The universe is a natural order (the principle of identity).
3. Knowledge and information can be abstracted from the natural world (the assumption of context independence).
4. Problems can be analyzed into parts that can be manipulated by mathematics (the methodological assumption).
5. Sense data are discrete (the epistemological assumption) (p. 49).

Given that these underlying assumptions "have become guidelines for decision-making in technology, industry, and government" in our globalized community (Merchant, 1992, p. 49), the connection between the oppressions over humans and non-human nature should become clear. With this new cultural emphasis on the power of humans, the "mechanical framework with its associated values of power and control sanctioned the management of both nature and society" (Merchant, 1992, p. 55). As seen with the example of colonization at Discovery Park, the attempts

to manage "both nature and society" are evidenced by the resulting domination over nature *and* over other humans. The need for colonizers to justify their right to both appropriate the land and to force out Indigenous people necessitated a perceptual shift in line with the newly developed mechanistic and non-organic view of nature. As Kim (2015) explains, Indigenous people were "dehumanized," as they were labeled by colonizers as "savages" and likened to "wild beasts" (p. 44). The tactic of dehumanization extends beyond the treatment of Indigenous people – not only did it justify the use of human slaves, but it also continues to influence the discourse surrounding the marginalization of certain races, genders, and other social distinctions today.

In discussion of the underlying assumptions of neoliberalism[2] that promote a view of nature either as a resource or as a pristine (white) space, Kim (2015) explores how "the two tropes construct nature as a global commons that must be neutrally managed by scientific experts for the good of the whole, [which] denies the *politics* of the matter – both the prevalence of conflicts over the use of nature and the systematic tendency of patterns of usage to privilege certain groups over others… and [promote] particular racial and class (and human) interests" (p. 141). In line with Kim's analysis, the debate over Discovery Park has operated within these neoliberal tropes; the land was seen as either a "resource" meant to be used and developed or as a "pristine" space meant to be preserved and untouched, which ultimately distracted from the needed effort toward deconstructing the ways in which these issues and discources were produced in the first place.

Given this connection between environmental and social problems, where the resulting oppressions of humans and non-human nature share an underlying influence of large-scale systems of capitalism that produce forms of human domination, we must recognize that our current means

[2] "Neoliberalism" can have many meanings in terms of its practical applications for policy, yet it generally refers to an economic philosophy that calls for a free market and supports the role of capital and the private sector over a highly regulative government. Neoliberalism, in practice, can be highly problematic given its tendency to prioritize profit and therefore further inequalities across social groups (i.e. race, gender, and class disparities).

of addressing such problems are inadequate and must be reevaluated. Rather than allowing mainstream efforts to continue focusing on solutions that may encourage further intentional interference with environmental systems to accommodate harmful human behaviors that, with no intervention, will continue to negatively impact global systems, it should instead be understood that our means to address environmental problems must come through understanding and changing the mindsets and systems that drive gratuitously harmful human actions toward human and non-human others.

This shift in framework is no easy task, as current generations are still encouraged to think within a framework that perpetuates these problems. Consider, for example, the idea of the "Anthropocene," which is now a commonly used term to officially denote the beginning of a new geological epoch dominated by humans (Crutzen, 2006). While widely accepted, this term has drawn a growing array of criticism for many reasons, including its problematic assumptions of: 1) the generalized impact of environmental degradation as a result of *all* humanity's actions, 2) the ability for humanity, as a discrete force, to singlehandedly exert enough power to fundamentally change all of earth's systems, and 3) understanding the forces of humanity as devoid of historical context. In other words, the first two points illustrate how the Anthropocene can reinforce a nature-society dualism, while the third point shows how it glosses over the influence of capitalism. While it can be easy to validate such a large-scale influence of humanity through measures such as collective greenhouse gas emissions, it is overly reductionistic to assume that all of humanity has had the same power in producing global problems like climate change. Rather, it is the historic processes that have produced (and continue to perpetuate) industrial and colonial capitalism that have themselves produced this modern environment that we now consider degraded.

Therefore, in contrast to the framework provided by the Anthropocene, this thesis draws on such critiques that argue not for the understanding of modern problems through the influence of all humanity on the environment, but rather through an engagement with the "relations of power and re/production that have made these environmental changes" possible (Moore, 2014, p. 39). While a full discussion of the Anthropocene debate is beyond the scope of this thesis, it is important to note such ways in which the Anthropocene framework can also actually reinforce harmful notions of human exceptionalism and human-nature dualisms. Under the assumption that problems such as climate change are *caused* by human actions, the idea that "society" and "nature" can each act upon each other while remaining "an ontologically independent realm of agency" is strengthened. And even while this framework may attempt to avert human exceptionalism by bringing the force of nature back into the equation, still the "consequence is to reproduce competing models of historical change characterized by a tug-of-war between social reductionism and environmental determinism" (Moore, 2014, p. 34).

The debate over the Anthropocene is not a simplistic argument over semantics; Moore (2017) calls out the Anthropocene[3] as "an idealist unity that severs the constitutive historical relations that have brought the planet to its present age of extinction" and a concept that denies "the multi-species violence and inequality of capitalism [while asserting] that the devastation created by capital is the responsibility of all humans" (p. 2-3). While the Anthropocene may on the surface seem to signal the beginning of a widespread acceptance of the connection between environmental and social problems, it actually reinforces (rather than resolves) deeply ingrained nature-society dualisms and fails to name the systems that must change in order to truly address

[3] This is in reference to the "Popular Anthropocene," as Moore (2017) describes (p. 2). Unlike the "Geological Anthropocene," which could be a "useful, 'formal concept to the scientific community'," the Popular Anthropocene refers to the new "way of thinking the origins and evolution of modern ecological crisis" (Moore, 2017, p. 2).

the forces that perpetuate these issues. Moore (2017) therefore diverges from the Anthropocene framework, and alternatively names the "Capitalocene" as an approach that privileges "a triple helix of environment-making: the mutually constitutive transformation of ideas, environments and organization, co-producing the relations of production and reproduction" (p. 4). In line with the framework proposed by Moore (2017), this thesis takes a relational approach that "follows part–whole movements in successive determinations and juxtapositions – through which the 'whole' in question (capitalism, imperialism, industrialization, etc.) undergoes qualitative transformation" (p. 4).

Similar to the work of reframing the ideas purported by the "Anthropocene," Kim (2015) calls for a "reconstructive" solution that reimagines "humans, animals, and nature outside of systems of domination" rather than extending the already-harmful perception of a superior "human" toward "a few racialized groups or preferred ape species" (p. 287). Building off of Kim's reconstructive method, this thesis also aims to provide decisionmakers and community members with tools that can challenge such perspectives of domination and address this force of capitalism that drives global environmental and social problems. Yet rather than focusing on the cultural perceptions and definitions of the "human," this thesis instead explores and develops theory regarding the potential ability of human interaction with relatively wild nature to nurture virtues of mindfulness, care, and cooperation in our global community, therefore deconstructing norms of large-scale and systemic dominative tendencies. As this thesis will explore, communities that uphold these virtues may be more likely to have less oppressive and more respectful interactions that support a balance between other humans and non-human nature, which could support efforts to achieve large-scale and long-term justice in the face of urgent environmental and social issues.

This thesis generally applies a framework of virtue ethics, in which questions of morality are focused on the defining characteristics of morally good people, rather than consequentialist ethics that focus on whether an act itself is "right" or "wrong." In specific reference to environmental virtue ethics, Hill (1983) explains this position by posing the question, "What sort of person would destroy the natural environment – or even see its value solely in cost/benefit terms?" (p. 211). One benefit of this perspective, while contentious, is that it can allow us to avoid seemingly endless debates that seek to define universal rules for how everyone should act in any situation; while some environmentalists, for example, may assert that cutting down trees is a morally wrong act, such an assertion can put us in a tricky situation once we consider the possible perspective of the loggers, who may only have accepted the job of cutting down trees in order to support themselves and their family. Such consequentialist perspectives therefore do not fully allow for an exploration of the feelings that may signal a deep discomfort with formulating universal rules that either result in prioritizing the trees or the logger, as it places rationality at the forefront of ethical questions.

Such *non*-consequentialist views of morality, like those of virtue, are necessary in order to understand the role of scale in ethics and justice. To illustrate, consider the example of an arachnophobe who encounters a spider in their sink as they go to wash their hands. Though this person does not want to be afraid of spiders, they cannot in that moment fight their feelings of intense fear and discomfort in response to that spider. This person – who hypothetically needs immediate access to this sink, is in a rush, and has no one else around to kindly remove the spider from their home – turns on the faucet and washes the spider down the drain. While killing the spider may, to some, be considered a morally wrong act, such a myopic focus on the individual's ethics (and attempts to assert that killing is *always* wrong) distracts from the more pressing

dilemmas that come about, not in regard to small-scale acts of killing or domination, but rather in response to large-scale acts of domination that amplify the disruptive consequences of violence.

Therefore when I discuss the ethical problem of "human domination," I do so in acceptance of such small-scale acts of domination that are a part of life, and instead in reference to the large-scale, systemic and out-of-balance acts that are in line with Deborah Bird Rose's (2004) concept of "doubling up." As Rose (2004) explains, the doubling up of violence refers to "a continuous act of wounding that not only kills part of a living system but actually disables or kills the capacity of a living system to repair itself" (p. 7). Considering our example of the arachnophobe, the act of killing the spider is not so problematic as it is does not "double up" the violence; yet if the arachnophobe were to invent and release a pesticide that instantly kills all spiders on earth, the doubling up of violence would present a more pressing moral issue that must be addressed. It is therefore important to have an ethic that can distinguish between scales of domination in order to focus our concern on the doubling up that "is an amplification of death, such that death exceeds a balance with life and becomes a self-amplifying process itself" (Rose, 2004, p. 7). In other words, the focus on defining the act of causing harm to another as morally wrong is not an effective framework; there is no life without harm, and so the proposed "ethics for decolonization [must] work with harm, twisting violence back into flourishing and life-affirming relationships" (Rose, 2004, p. 8).

In discussion of specific virtuous traits that could define a morally good person, "care" often comes to the forefront. Though it diverges from virtue ethics, the "ethics of care" literature brings critical issues in addressing systems of justice to the forefront. In direct contrast to traditional ethics that are founded upon moral judgment and moral reasoning, Noddings (2013) argues for a form of sentimentalism – an ethic of care – that stems from a feminist perspective. An

ethic of care, as Noddings (2013) writes, is founded upon reciprocity and relation, where "relation" is taken as "ontologically basic" in that we must fundamentally "recognize human encounter and affective response as basic fact of human existence" (p. 25). While I do not agree with the full ethic proposed by Noddings, as she subtly perpetuates gendered and human/non-human dualisms, the aspect of relation – in its ability to foster the feeling of care – is especially important in developing theories of human-nature interaction through a framework of virtue. I therefore draw on the ethics of care to inform my discussion of "care" as a virtue, as it can support other important virtues of "mindfulness" and "cooperation" and therefore foster more sustainable and balanced societies. Sentiment, a feeling of sensual pleasure and affection, can induce a relation between one and another, in turn giving rise to the ethical "I must" (Noddings, 2013, p. 167). Applying this framework to human-nature interaction as a way of fostering virtuous societies, the feelings that often arise through the interaction/relation can have the power to change one's mindset and challenge previously held notions of, for example, viewing nature as an exploitable resource.

While there is much debate surrounding the compatibility of virtue, the ethics of care, and justice, I will only note the most relevant perspectives informing my proposed framework for analyzing the case of Discovery Park. Some have attempted to relegate the virtue or ethics of care to feminine, personal or familial matters, while placing justice as appropriate to the public and political spheres (Held, 1995). This perceived mutual exclusivity is problematic, as it allows us to continue accepting systems of justice that woefully operate without care. The criminal justice system, for example, can illustrate how the imbalanced prioritization of rationality over sentimentality can lead to circumstances in which many people are undeniably suffering under a system that lacks adequate care. The pursuit of traditional justice, that prioritizes rationality, is also thought to introduce other problems, including its inability to adequately account for the views of

many Indigenous peoples (Plumwood, 1991, p. 9). Without endorsing the view of moral relativism, in which universal rules of ethics cannot be applied, we can find ways to integrate perspectives of virtue and care with justice through an understanding that ethics "must no longer be a closed system, but a way of living… in openness to the vulnerability of others" (Roth, 1999, p. xiv). Plumwood (1991) similarly writes that what we need is a "different and richer understanding" of ethics, rather than a total abandonment (p. 9). This new understanding should give "an important place to ethical concepts owning to emotionality and particularity and that abandons the exclusive focus on the universal and the abstract associated with the nonrelational self and the dualistic and oppositional accounts of the reason/emotion and universal/particular contrasts as given in rationalist accounts of ethics" (Plumwood, 1991, p. 9-10).

While it is not a focus of this thesis to propose specific ways in which traditional justice needs to change, it is important to understand ways in which alternative concepts can better encourage and equip people to act in ways that can allow for more just outcomes as we still operate within the current system. The ethics of care and responsibility, for example, seem to "extend much less problematically to the nonhuman world than do the impersonal concepts which are currently seen as central, and it also seems capable of providing an excellent basis for the noninstrumental treatment of nature many environmentalists have now called for" (Plumwood, 1991, p. 9). Slote (2007) argues for an understanding of traditional justice that is analogous to the ethics of individual acts and attitudes of caring, stating that "ethics of empathic caring can say that institutions and laws, as well as social customs and practices, are just if they reflect empathically caring motivation on the part of (enough of) those responsible for originating and maintaining them" (p. 94). We should therefore question systems of justice that are not guided on some significant level by the sentiment of care, as even the "social safety nets" (like the welfare state)

of justice can be "compatible with enormous differences of wealth and with a considerable amount of poverty," whereas "ethics of empathic care… may well want to suggest that justice requires *more* than a safety net" for greater social equality (Slote, 2007, p. 97). There will always be instances in which conflict arises in decisions of justice, as we can see in the case of debating Discovery Park's management, yet decisions that are made under the guidance of rationality *and* empathic caring can better situate the decisionmaker to achieve a more-than-just outcome.

The significant social factors that produce environmental degradation and influence the ways humans interact both other humans and non-human nature should signify the need to rethink current methods that address such intersecting environmental and social issues. The connection between environmental degradation, urbanization, and decreased human wellbeing should be clear, yet it has only recently been outlined in mainstream research. Specifically, urban development has increased to the point where a majority of Americans now live in cities: according to the Census Bureau, data collected between 2011 and 2015 shows that even though "rural areas cover 97 percent of the nation's land area, [they only] contain 19.3 percent of the population" (Census Bureau, 2016). In line with the increased rate of people moving to densely populated cities, the mental and physical health of those living in the United States has reached alarming rates as well; for example, 6.7 percent of American adults were diagnosed with Major Depressive Disorder in 2015 ("Depression," n.d.), and "the number of US adults aged 18 years or older with diagnosed diabetes quadrupled from 5.5 million in 1980 to 21.9 million in 2014, corresponding to a nearly three-fold increase in the percent prevalence from 3.5 to 9.1%" (Lin et al., 2018).

In attempts to understand whether such an increase in urbanization is correlated with the decrease in human mental and physical wellbeing, Bratman et al. (2015) postulated that "decreased nature experience may help to explain the link between urbanization and mental illness" (p. 8567).

In fact, there is a growing literature surrounding the many benefits of nature exposure to human health and wellbeing (Bratman et al., 2012; Hartig et al., 2014; Frumkin et al., 2017). Given the empirical foundation that connects regular human-nature interaction with human flourishing, problems can arise when our ever-increasing urbanization continues to diminish both the amount and *quality* of open green space that is accessible to the public.[4]

Beyond simply losing regular contact with nature, people who come of age within a culture of urbanization and development are losing a relationship of respect and care with nature. This loss fuels a positive feedback loop in which people do not have accessible nature to interact with, so they do not care about nature, which results in a culture desensitized to the destruction of the environment and eventually leads to even further reduction of natural resources available for healthy human-nature interaction. Given the rate of urbanization, the baseline for what constitutes "nature" for many people has shifted from what was once "relatively wild" to the more "domestic" [5] (or "urban") forms of nature, which can lead to "environmental generational amnesia." This term refers to the idea that "with each ensuing generation, the amount of environmental degradation increases, but each generation in its youth takes that degraded condition as the nondegraded condition [and] the normal experience" (Kahn & Hasbach, 2013, p. 228). This shifting baseline of our culture's perception of nature can create deeper issues that obstruct efforts to achieve a more environmentally and socially sustainable society. If mainstream research only focuses on poorly defined "nature" that encompasses only relatively domestic forms, then environmental and social policies will only strive to maintain that poorly defined baseline of the amount and quality of nature

[4] The environmental justice issue pertaining to the inaccessibility of safe and relatively wild parks for marginalized populations must also be noted as an important area for further research and policy efforts.

[5] As will be further explained in Parts 2 and 3, rather than defining "nature" as any open green space, this research utilizes a spectrum of "relatively wild" to "relatively domestic" nature, which allows for the exploration of the different interactions that result from people interacting with the various forms of nature at Discovery Park.

that can still provide a tractable "benefit" to the community. This lack of attention to relatively wild forms of nature can lead to subtle consequences, as this thesis (and other forthcoming research) shows that human interaction with relatively wild nature, unlike interaction with relatively domestic nature, can have a significant role in addressing intersecting environmental and social problems.

Given this phenomenon in which many people do not even know what they are missing as our environment degrades, this study also hopes to change and *deepen* people's relationship with *relatively wild* forms of nature like Discovery Park through the generation of a "Nature Language" (Kahn et al., 2010). Our intention with this methodology is to change people's perceptions of themselves in relation to other humans and non-human nature through providing people with a way to communicate about the "deep and meaningful patterns of human interaction with nature, many of which emerged through tens if not hundreds of thousands of years in our evolutionary history," that we are quickly losing to cultures that promote oppressive and dominating tendencies (Kahn et al., 2010). This emphasis on changing methods of communication is based on the idea that if a language dies, so does its surrounding culture. As such, we hope to create a way of speaking about a positive and respectful relationship with nature – a *nature language* – in order to change and *enrich* our connection to the natural world beyond our narrow interests of using nature as a means to an end that encourages the exploitation and destruction of our global environment. As Haraway (1989) writes, "Discourses are not only social products, they have fundamental social effects. They are modes of power" (p. 289). If we can therefore change our language around the ways we perceive and interact with our environment, then we will likely be better situated to create sustainable societies that fosters virtuous communities that seek to live in respectful balance and relation with human and non-human others.

This research therefore uses methods that breaks away from typical nature-wellness studies that narrowly define "nature" and its "benefits." The empirical study outlined in Part Two in part utilizes a phenomenological approach, in reference to the general idea that "direct sensorial experiences with the phenomenon of nature constitute a foundational source of knowledge, joy, and a full realization of human potential" (Kahn & Hasbach, 2012, p. 119). This approach was applied through our method of collecting first-person narrative data about the participant's experience in Discovery Park, obtained through our Nature Language website (www.naturelanguage.com), where participants were prompted to write a few sentences to a few paragraphs that describe a meaningful experience they had interacting with nature in Discovery Park.

Unlike other nature-wellness research that lacks attention to the actual experience of *interaction* that takes place between humans and nature, this research emphasizes the interactive component of human flourishing through asking participants to reflect specifically on an interaction they had with nature in the park. Drawing on the work of Bell et al. (2015), this thesis does not mean to generalize the effects of one landscape on an entire population, and instead emphasizes and embraces the individuality of the study's participants in relation to their described environment. In regards to defining "wellbeing," Bell (2015) wrote that "personal wellbeing is rarely the same for all individuals, and people's conceptions of wellbeing may change over time, [which creates] challenges for research since standardized measures of health and wellbeing may not resonate with the wellbeing priorities of individuals under study" (p. 57). Following the example of Dinnie et al. (2013), Bell therefore advocates for an exploration of people's personal sense of wellbeing through asking "about their experiences, feelings and interactions with the world and their perceptions of those experiences" (p. 104), while also acknowledging that the

history of the landscape in question also has an effect on those who interact with their environment (Bell et al., 2015, p. 57). Parallel to our approach of human-nature interactions, Bell (2015) discusses "wellbeing encounters" as "a relational outcome, as something that emerges through a complex set of transactions between a person and their broader socio-environmental setting" (Conradson, 2005, p. 338). Given the dynamic concept of "wellbeing," the open-ended and exploratory nature of our study allows for a deeper understanding of the factors that could bring different people to a balanced state of wellness and being.

In further emphasis of human interaction with the environment, this research also involved the creation of a novel coding system to quantify the frequency and variety of ways in which people interact with Discovery Park – in other words, "Interaction Patterns" – as described in their qualitative/narrative data. As constituents of a Nature Language, "Interaction Patterns" are characterizations of essential features of interaction between humans and nature, specified abstractly enough such that countless different embodied versions of each one can be uniquely realized given different types of nature, people, and purposes (Kahn & Weiss, 2017; Kahn et al., 2012; Kahn et al., 2010; Kahn et al., 2018). Drawing upon Christopher Alexander's work on architecture and patterns (Alexander, 1977), Kahn posits that Interaction Patterns "are not rigid molds… Rather patterns embody an underlying unified structure that allows for infinite instantiations" (Kahn, et al., 2010, p. 60).[6] While Interaction Patterns are the main component of this empirical research, we created additional coding categories to ensure that the relevant information from the participant's Nature Language is retained. Such categories include: "Nature Actions," "Nature Descriptions," and "Psychological Descriptions," as described in the supplementary technical report provided in the Appendix. Our data revealed several recurring

[6] While all empirical research requires some level of reductionism, the foundation of our methodology allows for an exploration of the meaningful depth-of-experience that is often left out of empirical research.

themes, coded as: “Absence of Civilization,” “Seclusion,” “Generating New Social Relationships,” “Deepening Existing Social Bonds,” “Nature Sparking Memories/Happy Rumination,” and, “Biodiversity/Diverse Landscapes,” of which definitions are found in the Methodologies section of Part Two.

Beyond only providing an empirical analysis of the ways in which people interact with nature at Discovery Park, this thesis also includes analyses that aim to contextualize the land-use debate of Discovery Park within its history colonization, where the land was once home to Indigenous People before its eventual evolution into a public park. Throughout my process of collecting background information on Discovery Park, I had come across a troubling discrepancy between the history provided by the City of Seattle and the history told by people who are indigenous to the land, in which the former presents a history that begins in 1860 when “private property owners” logged the bluff. Further investigating the park’s history, narratives from Indigenous people were uncovered recounting their removal from what is now Discovery Park by “private property owners,” outlining the following century-long struggle to maintain their lives in connection to their ancestral land. These contrasting narratives led me to inquire whether there are deeper ethical issues that are not being represented or addressed in the mainstream debates over Discovery Park’s land-use. Given this intersection of environmental and social issues at Discovery Park, any discussion of its “purpose” or “benefits” must at the minimum include discussion of whether the park’s creation has been a part of, or has contributed to, the same oppressive societal structures that in turn fuel our harmful behavior towards the environment. The apparent lack of attention to Discovery Park’s history represents a continuation of one of the many patterns of injustice and oppression that remain embedded within our social structure, thus why Part One of this thesis opens with a historicization of Discovery Park. One could argue that the view of

Discovery Park as underutilized space parallels the views of the colonizers who initially claimed the land as private property in order to develop and maximize its utility.

When environmental and social issues intersect, often resulting in disproportionate burdens placed on marginalized humans and non-human nature, it is imperative that these claims are discussed together, as I intend to, with shared goals that seek solutions that address the driving force of the problems rather than merely its symptoms. Through analyzing the implications of the historical significance of Discovery Park's colonization, in tandem with the results pertaining to relatively wild nature from the empirical study outlined in Part Two, this thesis culminates in Part Three which aims to inform researchers, policymakers, and community members of the global implications of local issues like the land-use debate over Discovery Park. Building off the empirical results outlined in Part Two, Part Three further explores the significance of encouraging human interaction with relatively wild forms of nature in addressing the lingering norms of large-scale domination, produced through colonial capitalism, that continue to influence the ways in which humans interact with other humans and non-human nature today. One of the goals of this thesis is to reframe the competing means in which environmental and social issues are currently addressed in order to achieve more effective and just solutions. By actively addressing the global issue of colonial capitalistic domination, the goal is to unite advocates who seek justice through a shared objective of fostering a more caring, mindful, and cooperative community in order to achieve long-term sustainable and balanced societies.

The research underlying this thesis will illuminate the many *differences* in people's perceptions and values of nature that could arise from different experiences and cultures, with the intention of challenging dominant capitalistic narratives of those who hold positions of power and often narrowly view nature as either a resource or as underutilized open space. Offering alternative

narratives of the meaningful ways in which people interact with space typically thought of as underutilized can disrupt the top-down model of power and oppression that perpetuates environmental and social problems. Decisionmakers should therefore incorporate a bottom-up approach and actively listen to the wants and needs of communities that are especially marginalized, asking those communities how they think the problem should be addressed. As discussed in Part One, this approach is more than simply "listening," because this process should involve a transfer of power from those in the dominant communities to those below. Without interacting and engaging with those to whom we differ – both with other people and non-human nature – in turn creating new and shared perspectives of respect, we will not overcome the oppressive norms that perpetuate environmental and social problems. Given the influence of capitalistic domination that drives environmental and social problems, advocates for global justice must reframe their dialogue to unite competing environmental and social efforts in their parallel goals to promote a society that lives in respectful balance and relation with their global human and non-human community.

Part One

The Indigenous and Colonial History of Discovery Park: The Need for Recognition and Power Redistribution

Both Discovery Park's Master Plan and its history provided by the City of Seattle paint incomplete pictures of Discovery Park. Specifically, the Master Plan crafted in 1972 seeks to define a perception and use of its land as "serene," "tranquil," and a "sanctuary" for citizens of the city, as detailed in the below excerpt:

> *The seclusion of the site, the magnificent vistas, the stretches of tidal beaches, the stands of native trees, the meadowlands - all combine to make this site one of surpassing beauty and serenity… The primary role of this park… should be to provide an open space of quiet and tranquility for the citizens of this city - a sanctuary where they might escape the turmoil of the city and enjoy the rejuvenation which quiet and solitude and an intimate contact with nature can bring.* ~ "Park Objective," & "Primary Function – Central Purpose," Discovery Park Master Plan (Kiley, 1972, p. 4).

These claims from the Master Plan continue to be significant today in the face of encroaching urban development, where advocates for Discovery Park's preservation and conservation cite these words as reasons to maintain the landscape and block any potential development within or around the park. While the Master Plan is accurate in saying that Discovery Park is beautiful and can afford the experience of serenity and tranquility that are important yet difficult to find in urban environments, these overarching perspectives lack a historical context which actually may be facilitating and, even worse, promoting, the erasure of Discovery Park's history of colonization and domination that occurred before its creation. This lack of context could, in turn, impact the manner in which different communities perceive and use the land today. Though viewing Discovery Park as the ideal place for Seattleites to "escape the turmoil of the city" is an

accurate claim of the park's current state, the non-acknowledgment of the land's historical colonization presents a problem, as we risk normalizing the mindsets of domination that produced the park in the first place, which could ultimately cultivate an environment in which other related oppressions and injustices are likely to occur.

One might argue that the City of Seattle has in fact provided the public with a history of Discovery Park's creation, as the City's Parks and Recreation website provides a page titled "Discovery Park History." Yet, similar to the Discovery Park Master Plan, the City of Seattle's historical narrative also inadequately documents the influence of colonization on the land. To illustrate this lack of recognition, the brief history that is provided by the City of Seattle is quoted below:

> *Fort Lawton originally occupied much of the northwestern part of Magnolia Bluff. The bluff was named by Lt. George Davidson during a U.S. Coastal Survey in 1857, mistakenly identifying red-barked madrone trees as magnolias. The original high hopes that the post in Magnolia would become a major military installation by Seattle's turn-of-the-century civic leaders were never realized. Fort Lawton was developed in the late 1890s, opened in the early 1900s, and had long periods of underuse after each world war. By the 1970s, much of the fort's land was turned over to the City of Seattle to become Discovery Park.* ~ (Discovery Park History, n.d., para. 1).

- ⇒ 1860-70's: Private property owners logged the bluff.
- ⇒ 1881: West Point Lighthouse was built.
- ⇒ 1890: Beginning of the development of an army post.
- ⇒ 1900: Fort Lawton opens.
- ⇒ 1969: U.S. Senator Jackson (D-WA) introduces a bill enabling cities to acquire surplus federal lands at no cost for park and recreational purposes. President Nixon signs this bill in October 1970.
- ⇒ 1970: The United Indians of All Tribes Front (UIATF) presents a claim to all lands that might be declared surplus. The City negotiates an agreement to lease 17 acres to the organization for an Indian Cultural Center.

⇒ 1972: The Master Plan was submitted to the City.
⇒ 1973: Discovery Park opens.
⇒ 1977: Daybreak Star Cultural-Education Center opens.

The fact that the City of Seattle begins its history in 1857 and focuses only on the "hopes" of colonizers to build a major military installation should be the first signifier of problems with the way this history is told. The timeline clearly edits the story of Discovery Park's creation; to start, it leaves out the fact that before "private property owners" began cutting down trees, Discovery Park was Duwamish land. In actuality, the Duwamish were forced out in the 1860's as the land was logged and turned into a military base. After the United States Department of Defense declared most of the Fort Lawton military base as surplus in 1970, Native American activists held a peaceful "militant takeover" in attempts to reclaim their land. This was not as simple as "presenting a claim to all lands," as the City of Seattle has stated, rather the Native American activists encountered violent pushback from the city who went so far as to call upon the army to control peaceful protestors ("Army Disrupts Indian Claim on Ft. Lawton", 1970). Even the Master Plan refers to these negotiations as "the last major obstacle to the acquisition of the surplus land at Fort Lawton for park purposes" (Kiley, 1972, p. 17). This language illuminates a lack of care toward the plight of the Indigenous activists who sought recognition and justice at the time of Discovery Park's creation. While the UIATF was eventually leased seventeen acres of the soon-to-be park in order to create what is now the Daybreak Star Cultural Center, their history of fighting for justice continues to be pushed further out of the minds of people today as their narrative is left out of the mainstream discussion.

The tale of Discovery Park's creation, as told by the City of Seattle, effectively erases the history of the Duwamish people. The allowance of the UIATF to create Daybreak Star is not adequate restitution for the many injustices they continue to face. Discovery Park is subject to

regulations imposed by the City of Seattle, further restricting certain rights of the Daybreak Star community. Though they have a community center, the Daybreak Star community is still a leased space subject to the city's laws that can prohibit certain cultural practices, such as foraging for food or modifying the landscape. When decisions are made regarding the future of Discovery Park, it must also be remembered that our community's values and needs are more diverse than simply the narrow perspective of utility and expansive development that is too often held by those in positions of power.

Intentional or not, attempts to erase historical injustices is itself an act of injustice that can increase the trauma felt by the communities who have themselves lived or have come of age in cultural connection with that history. There should not be two divergent narratives of Discovery Park's history, as this could be indicative of communities in power trying to *maintain* their influence over others. In fact, under the assumption that the formation of one's identity is partly shaped by the recognition of (or being seen by) another, many argue that adequate recognition is actually a "vital human need" (Taylor, 1994, p. 26). If, for example, those around you mirrored back a "confining or demeaning or contemptible" or a generally mismatched image of yourself, you can very well suffer a form of harm or oppression by being imprisoned in a "false, distorted, and reduced mode of being" causing you to internalize a picture of your own inferiority, which could therefore make you less able to take advantage of new opportunities (Taylor, 1994, p. 25). It is therefore troubling that the Master Plan and the City of Seattle encourage our community to "escape" of a product of colonization by seeking respite in land that itself is a product of colonization *without* an acknowledgment of this history and without any recognition of the affected Indigenous communities today.

To remedy this skirting of history, the City of Seattle should not only offer a public acknowledgement to remedy the discrepancies in their version of Discovery Park's history, but it should also actively work with the Daybreak Star community to make the necessary changes in order to afford them adequate recognition. Simply acknowledging the traumas through a retelling of the experienced history can assist in the healing process for those communities (Brave Heart, 1998; Liehr & Smith, 2008; Charbonneau-Dahlen et al., 2016). At the minimum, recognition of this historical trauma and its impacts on Indigenous communities today could spark discussion about how to address the problems within the city's structure that require its residents to find reprieve in the first place.

Beyond recognition, there needs to be a redistribution of power within the current and future methods of managing Discovery Park and its surrounding land. To effectively accomplish this shift in power, there must be a change to the approaches in which the public learns and converses with each other. One such method could draw on Bubeck (2000) who argues for a revision of standpoint theory that replaces its embedded "antagonistic model" with a "dialogical model" of acquiring knowledge. Specifically, standpoint theory bases its argument on the claim that everyone has their own unique perspective, which allows for a unique kind of knowledge to emerge (Bubeck, 2000). However, if we claim that everyone can *only* understand the world through their own individual perspective, Bubeck believes that antagonistic and problematic relations arise, possibly through an inability to meaningfully relate to one another. Instead, Bubeck's dialogical model acknowledges that "knowledge is 'produced' jointly, through mutual listening and talking" (Bubeck, 2000). In applying the dialogical model to the case of Discovery Park, dominant stakeholders should understand the need to utilize methods of "mutual listening and talking" to relinquish some of their power and afford it to marginalized communities that can

expand and diversify all stakeholders' knowledge for the better. In fact, a dialogical model of active listening can aid not only in the diversification of voices across social groups, but also in curbing the effects of Environmental Generational Amnesia across generations.[7]

Ultimately, in order for the City of Seattle to avoid repeating past injustices in the way it manages its land, it is necessary to diversify the modes in which it perceives the land's meaning and intent. Such diversification must begin with a recognition and acceptance of responsibility for the injustices done to Indigenous peoples at Discovery Park, who continue to fight for justice and recognition today. Beyond a simple recognition of the City of Seattle's past injustices, decisionmakers must also incorporate a bottom-up approach that redistributes power and creates new relationships and forms of knowledge, to discover approaches that actively address the issues brought about by their innate colonialist biases that emerge from a Western capitalistic culture.

[7] While the dialogical model may in fact aid in curbing the effects of Environmental Generational Amnesia, it is important to note that this can only serve as a complementary step along with the need for people to gain their own direct and personal experience interacting with relatively wild forms of nature.

Part Two

Characterizing and Quantifying Discovery Park's Current Use To Inform Management Decisions

In response to the recent land-use debates, the following empirical study outlines the application of an Interaction Pattern Analysis that both characterizes and quantifies the ways in which people interact with nature in Discovery Park. It is important to contribute such an assessment of the ways in which those who visit Discovery Park use and find meaning in the space in order to advise decisionmakers of the potentially uncharacterized uses and benefits that the land provides in its current state, in contrast to claims that the land is underutilized.[8] In order to assess the ways in which Discovery Park is being used, our study team obtained first-person narrative data about the meaningful ways in which people interact with the nature at Discovery Park. This method breaks away from traditional nature-wellness research that purports a utility-based model of valuing nature, as those studies often apply a nature-as-resource framework that simply redefines the resource as a measurable health outcome. While it is possible that through interacting with nature one can eventually shift away from such a utility-based view, it is important for such research to be presented in a way that understands its implications outside of the health and wellness field; the utility-based model of nature-as-resource stems from the development of colonial capitalism, which is a system that perpetuates global environmental and social problems like climate change. Given the parallels between the human oppressions of other humans and non-human nature, it is imperative that those who seek to address a given environmental or social

[8] It is important to note that even though this portion of the study encourages a valuation of nature based on its benefits for human health and wellbeing – essentially identifying nature as a resource for human use – we only do so in hopes to effectively engage people by connecting their personal values of wellbeing with the value of nature. We hope that people can still move past the harmful perception of nature as a resource through changing the ways we communicate about and interact with nature. This change in communication can influence the ways people perceive themselves in relation to nature, in turn encouraging more respectful values. These ideas are explored in greater depth in Part Three.

problem address the underlying connections between the two and actively attempt to deconstruct such norms of colonial capitalistic human exceptionalism and domination. Such is why the following empirical study is presented within the larger context of Discovery Park's colonial history (Part One) and its relevance to global issues of justice (Part Three).

An Interaction Pattern Analysis is founded upon "Interaction Patterns," which are fundamental units that use language to describe a moment of interaction between two entities;[9] a major goal of characterizing the seemingly infinite instantiations of Interaction Patterns is to develop a "Nature Language," which is a way to deepen and change our means of communicating about the specific ways in which humans interact with nature.[10] Changing the kind of language we use to communicate about the meaningful ways in which we interact with nature is an essential component of my larger hope to foster virtuous societies that uphold mindfulness, care, and cooperation so as to confront pervasive mindsets that uphold norms of human exceptionalism and domination. This shift in mindset is meant to address the lingering problem of colonial capitalism that remains embedded within globalized systems and perpetuates environmental and social issues, topics that are discussed in Part Three.

Given the unique methodology and research goals, the main data for this portion of the study is therefore the participants' "Nature Language" – referred to as the "Nature Experience" on our study's website – which is their narrative description of their experience in Discovery Park. The Nature Language data was coded according to an Interaction Pattern Analysis, which breaks down participants' sentences into code-able "Interaction Patterns" that can be quantified and

[9] Given this lingual component, Interaction Patterns can be adapted to account for the different experiences of different cultures within their own words that shape their reality.

[10] Though I focus on Interaction Patterns as constituents of a Nature Language, Interaction Patterns can also describe interactions between any entity and another. For example, previous studies in the HINTS Lab led by Dr. Kahn characterize Interaction Patterns between children and robots.

analyzed. As constituents of a Nature Language, "Interaction Patterns" are characterizations of essential features of interaction between humans and nature, specified abstractly enough such that countless different embodied versions of each one can be uniquely realized given different types of nature, people, and purposes (Kahn & Weiss, 2017; Kahn et al., 2012; Kahn et al., 2010; Kahn et al., 2018). While Interaction Patterns are the main component of this research, coextensive coding categories were created to ensure that no relevant information from the participant's Nature Language was lost. Such categories include: "Nature Actions," "Nature Descriptions," and "Psychological Descriptions," "Time," and "Location." Close reading of the Nature Language data also revealed several recurring themes, which were coded as: "Absence of Civilization," "Seclusion," "Generating New Social Relationships," "Deepening Existing Social Bonds," "Nature Sparking Memories/Happy Rumination," and, "Biodiversity/Diverse Landscapes."

The complexity of language along with the many rich ways in which participants wrote about their experience in Discovery Park is reflected through the need to create several coding levels/categories to process the data. Thus, the development of the Nature Language Coding Manual is in fact a "result" in and of itself, in addition to its intended purpose as a "methodology." Given the extensive nature of this coding manual, only a synthesized version of the Nature Language Coding Manual will be provided in its own section. Our study team has also published the full technical report of the Nature Language Coding Manual in order to provide open access to this core intellectual qualitative work. Though this coding system was developed specifically for Discovery Park, we hope that it can be generalized and used by others to conduct related research to better understand human-nature interactions, especially in other landscapes.

Methods:

-Participant Recruitment/Data Collection-

Data was collected through our Nature Language Website (www.naturelanguage.com), as seen in Figure 1, with a total of 320 participants. Data collection began in June 2017 and ended in September 2018, with members of the study team utilizing various methods of recruiting participants, including posting signs, media interviews, emailing various neighborhood communities through list-serves, posting on social media, going to Discovery Park to directly ask visitors to participate, and word of mouth.

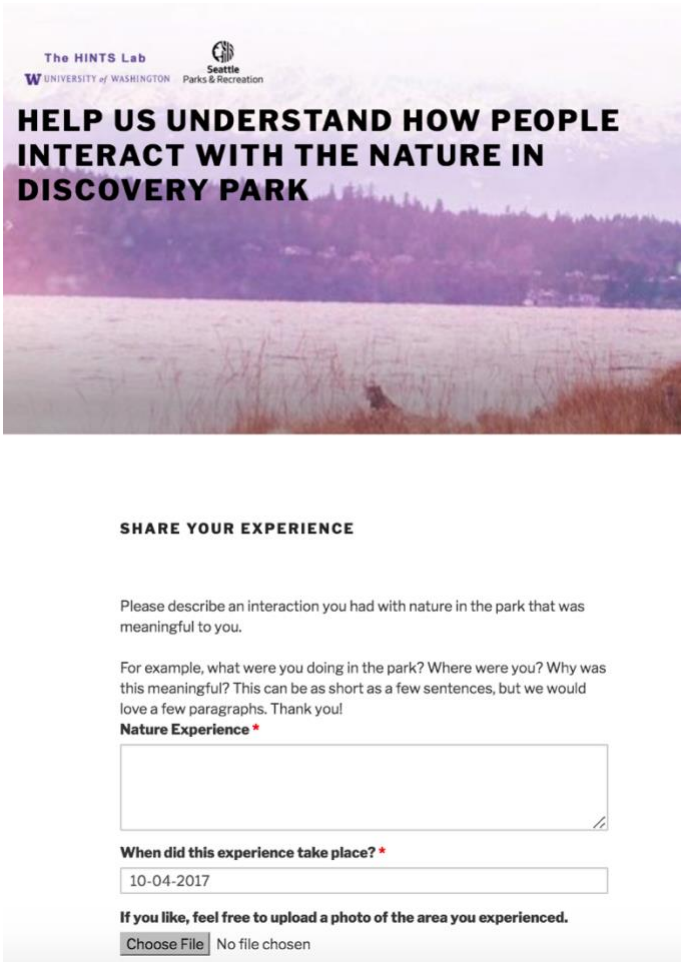

Figure 1: Nature Language Website (www.naturelanguage.com)

On the Nature Language website, participants were asked to write a few sentences to a few paragraphs that describe a meaningful experience they had interacting with nature in Discovery Park. Participants were also asked to provide demographic data, including their zip code, household income, ethnicity, gender, and age. All participants were required to be over the age of eighteen years old and were provided a consent form with general information about the research and study team. Screenshots of the Nature Language website are provided in the Appendix.

Nature Language Coding Manual Development:

After data collection began, incoming data was analyzed by a forum of the research team each week to attempt various methods of coding to extract relevant, meaningful, and standardized information to answer our theory-based research questions. This study's main research question sought to understand how visitors of Discovery Park interact with nature at the park, thus why our main level of coding is for Interaction Patterns. Yet through our weekly analyses of incoming data, our study team noticed that much of the rich qualities and meaning behind our participant's narratives were not being coded as Interaction Patterns, simply by virtue of the wide diversity of ways in which people typically write. This concern led us to develop several coextensive levels of coding based on our data to capture the many ways in which participants described their experiences and observations at Discovery Park.

The information provided in this section is only a synthesis of the most relevant guidelines for each coding level[11] and should not serve as a complete methodology. This section will outline the basic definition, purpose, and instructions for the most important coding levels in the following order: 1) *Interaction Patterns,* 2) *Keystone Interaction Patterns,* 3) *Nature Action,* 4) *Nature Description,* 5) *Psychological Description,* and 6) *Themes*.

Interaction Patterns:

At the most fundamental level of coding, the Interaction Pattern (IP) characterizes any physical and/or sensorial (including any one or combination of the five senses: touch, smell, sight, taste, sound) activity between the participant and nature. We attempt to standardize each participant's unique way of writing their human-nature interaction through coding the IP in

[11] A "level" of coding is a distinct coding category, such as "Interaction Patterns," "Keystone Interaction Patterns," "Nature Actions," and so on.

"present progressive tense verb-(preposition)-noun" form (V-(P)-N), with a few exceptions, where all extra words or information (such as adjectives) are excluded.

For example, consider the following data entry:

> "We **sat and listened to the waves at the beach** for a while**.** We were also lucky enough to **see a seal in the water**, which was an especially meaningful experience for us."

The bolded text indicates where there are code-able Interaction Patterns. This participant used clear verbs – "sat and listened," "to see" – and provided clear nature nouns – "waves," "beach," "water." Following the definition of Interaction Patterns, along with the thirteen decision rules outlined fully in the Coding Manual, there are three Interaction Patterns to code:

1. *Sitting at beach*
2. *Listening to waves*
3. *Seeing seal*

The simplicity of Interaction Patterns is intentional, as their purpose is to distill large amounts of information to its "essential features" in order to find patterns across participants who use language in different ways.

Keystone Interaction Patterns:

Our term "Keystone Interaction Patterns" partly mimics the term keystone species, while broadening its meaning to fit our specific goals. The term "keystone" is generally defined in two ways: 1) "the middle stone in the top of an arch that has a special shape and holds all the other stones in position", and 2) "the most important part of a plan, idea, etc. on which everything else depends." Similarly, conservation biologists use the term "keystone species" to refer to a species (such as a top predator) that has a disproportionate benefit to its environment relative to its

abundance (Mills et al., 1993; Paine, 1995). For example, if the wolf (a keystone species) is removed from areas such as Yellowstone National Park, then a trophic cascade ensues in which the elk populations grow more abundant, consequentially overgrazing vegetation, eventually leading to the loss of habitat, increased erosion, and the loss of biodiversity (Eisenberg et al., 2013).

Thus, we define a Keystone Interaction Pattern as "any interaction pattern that plays a disproportionately large role in human-nature interaction because (a) it occurs frequently, (b) it is itself hugely beneficial or meaningful, (c) it engenders dozens or even hundreds of complementary, subsidiary, or overlapping interaction patterns, and/or (d) its loss leads to the subsequent loss of dozens or even hundreds of complementary, subsidiary, or overlapping interaction patterns" (Kahn et al., 2018). We have classified three distinct types of Keystone Interaction Patterns in accordance with the definition provided above:

1. "Most Meaningful Interaction Patterns" (MMIPs)
2. "Most Foundational Interaction Patterns" (MFIPs)
3. "Most Frequent Interaction Patterns" (MFqIPs)

These classifications are related to definitions (b), (c and d), and (a) respectively. These Keystone IPs are all vital to human-nature interactions and human wellbeing. To note, the Most Frequent Interaction Pattern is not a part of this coding process, and is instead calculated as a part of the data analysis after the coding is complete.

To illustrate how we would code a Most Meaningful Interaction Pattern, consider the same example used above:

> "We sat and listened to the waves at the beach for a while**.** We were also lucky enough to **see a seal in the water**, which was an especially meaningful experience for us."

The bolded text illustrates the Interaction Pattern that is coded as Most Meaningful, and the underlined text identifies the justification for such coding. Given that participants were already prompted to write about a meaningful experience they had interacting with nature in the park, all coded Interaction Patterns are, by definition, "meaningful." Yet sometimes participants identify a specific interaction that was especially meaningful, as illustrated in the above example, which led us to create a system to capture that information in our analyses.

Similarly, to illustrate how we would code a Most Foundational Interaction Pattern, consider the following example:

> "I have had many experiences at Discovery Park. One of my favorite moments was **sitting with my young daughter for a snack break by the pond** below the Daybreak Center. We sat there, **watching the ducks**, **observing the insects**, and then my daughter played a bit around edges. Before heading onward we had the good fortune to **hear owls** caterwauling in the surrounding forest."

The bolded text identifies the four Interaction Patterns that were coded (1. *Sitting by pond*, 2. *Watching ducks*, 3. *Observing insects*, 4. *Hearing owls*), and the underlined text distinguishes the IP coded as Most Foundational. Our reasoning behind such coding is that the initial interaction of *sitting by pond* laid the foundation for the following IPs to unfold – if the participant had not sat by the pond, then it is less likely that they would have watched the ducks, observed the insects, and heard owls. While this level of coding does not show what is "most meaningful" about Discovery Park, it still helps to illuminate which aspects may be especially important for conservation or preservation efforts in the park. Similar to a keystone species, a Most Foundational

Interaction Pattern could play a disproportionate role in supporting the enactment of many other forms of IPs in the park.

Nature Action:

A "Nature Action" is a happening initiated by a nonhuman cause that is meant to capture the overarching scenario surrounding the "nature" described in the participant's Nature Language. Similar to a human-nature interaction, in which the human and nature interact with each other, a Nature Action characterizes when nature is "interacting" with other nature, as described by the participant. Specifically, a Nature Action can code: 1) an interaction between at least two biotic organisms (i.e. *eagle catching fish*), 2) an interaction between biotic organisms and abiotic components (i.e. *crab hiding under rock*), 3) an interaction between at least two abiotic components (i.e. *rocks falling over cliffs*), and 4) a general action of one biotic organism or abiotic component on its own (i.e. *eagle flapping wings; blooming flowers*). In theory, the Nature Action would have happened regardless of the human being there to observe it, though it is possible that the nature of observation could have influenced the Nature Action anyway. In short, the Nature Action is meant to capture the rich and diverse ways in which people notice and characterize aspects of their surrounding natural environment.

Oftentimes coding only for the Interaction Pattern can lose some significant information, which led our study team to develop these coextensive coding categories like the Nature Action. To illustrate, consider the following data entry:

> "I have had many experiences at Discovery Park. One of my favorite moments was sitting with my young daughter for a snack break by the pond below the Daybreak Center. We watched the ducks, sketched the pond, and my daughter played a bit around edges.

> Before heading onward we had the good fortune to **hear owls** caterwauling in the surrounding forest."

The bolded text identifies the code-able Interaction Pattern, and the underlined text identifies the coded Nature Action: *owls caterwauling in surrounding forest*. If we had only coded *hearing owls* as the Interaction Pattern, we would have lost the participant's description of the surrounding scenario. In the database it is possible to establish a link between the Interaction Pattern and the Nature Action in order keep the two bits connected.

Nature Description:

A "Nature Description" is the portion of the participant's Nature Language that directly describes any of the nature identified by the participant. In contrast to the "Nature Action," – which describes either an interaction between different components of nature or a general action happening within nature – the Nature Description is relatively stationary. This level of coding captures the rich ways in which participants notice and describe their surrounding environment, thus a form of engagement.

For an idea of how Nature Descriptions are coded, consider the following data entry:

> "When I got home that evening and thought about my day, I felt great about the physical exercise we did, but I also felt so enriched by the sites we enjoyed during the **hike across the clean, open fields, through the forest to the driftwood lined beach** and back again."

The bolded text marks potential Interaction Patterns to code, and the underlined text identifies the Nature Descriptions. Like the Nature Action, the Nature Description provides supplemental information to the coded Interaction Patterns. A coding of only the Interaction

Patterns would yield: 1) *hiking across fields*, 2) *hiking through forest*, and 3) *hiking to beach*. Yet with the Nature Description, coded data would include the other reflective information provided by the participant, such as: 1) *clean, open fields*, and 2) *driftwood lined beach*.

Psychological Description:

A "Psychological Description" is the portion of the participant's Nature Language that describes their personal reflections on and feelings about their experience in Discovery Park, including cognitive, emotional, and psychological experiences. The Psychological Description is in contrast to the physical/sensorial experiences that are coded as IPs. There are three possible forms that a Psychological Descriptions could take: 1) the participant's description of their personal feelings, 2) the participant's description of an action, where the verb is more "psychological/emotional" oriented (though this is not always the case), as opposed to the "physical/sensorial" verbs coded within Interaction Patterns, and 3) the participant's description of the general feelings surrounding their larger experience described in their Nature Language. The first and second types are almost always founded upon a verb (i.e. "*I **felt** happy*" and "*I **marveled** at the views*", respectively), and the third type is almost always simply a list of adjectives or descriptive words (i.e. "*my walk was **quiet and peaceful***"). Notice how the first two forms are in reference to the participant's self, and the third form is in reference to the participant's more general experience.

Themes:

Themes are our attempts to categorize repeating ideas throughout our data. As defined below, the six themes found in our data are: 1) Absence of Civilization, 2) Seclusion, 3) Generating New Social Relationships, 4) Deepening Existing Social Bonds, 5) Nature Sparking Memories/Happy Rumination, 6) Biodiversity/Diverse Landscapes.

1. Absence of Civilization:

The participant discusses the sense of Discovery Park being a place that is distanced from human civilization, usually with a mention of feeling immersed within wild forms of nature (typically referred to as "wilderness"). This theme captures the essence of what could be lost as urban development continues to rise. Research shows a correlation between declining mental/physical health and living in a city, thus reinforcing the importance of having accessible places like Discovery Park that afford the beneficial experience of the *absence* of city life.

2. Seclusion:

The participant explicitly discusses that they were afforded the experience of being alone, or away from other people, while in Discovery Park, including a focus on solitude, peace, quiet, and tranquility. Similar to the theme *Absence of Civilization*, *Seclusion* captures the essence of another important feature that will be lost as urban development continues to rise. It is difficult to find moments of aloneness and tranquility within a city, which is why it is important to maintain the public's access to places like Discovery Park that afford the opportunity to find peace through solitude.

3. Generating New Social Relationships:

The participant discusses how their experience in the park afforded the opportunity to positively relate to or communicate with strangers in the park. Despite the fact that cities are places of high population density, people often feel disconnected from those around them and lack a sense of community. On the other hand, nature often affords a sense of comfort that can open people up to connecting with new people in ways that would not happen in a city. Thus, this theme captures the essence of nature's ability to encourage people to generate new social relationships with people they had never met before.

4. Deepening Existing Social Bonds:

The participant discusses how their experience in the park afforded the opportunity to deepen their already-existing relationships with family, friends, peers, acquaintances, etc., through their joint visit of the park. In the same way that being outside in nature can generate new social relationships, a shared interaction with nature can also deepen interpersonal relationships with those you already know. To qualify for this theme, the participant must somehow emphasize the *deepening* of such relationships. Therefore, do not code responses that simply mention that the participant had come to the park with other people.

5. Nature Sparking Memories/Happy Rumination:

The participant discusses a positive or happy memory that they either: 1) associate with Discovery Park, or 2) thought about *because of* their experience in Discovery Park. "Rumination" often has a negative connotation and is more likely to happen in an urban environment as opposed to a natural environment. Research shows that interacting with nature can *decrease* rumination, yet this theme captures a similar idea of nature affording "*happy*" rumination – thinking about positive memories – instead of no rumination at all.

6. Biodiversity/Diverse Landscapes:

The participant either writes about: 1) the high level of biodiversity within a given ecosystem at Discovery Park, or 2) their *appreciation* of the diversity *across* landscapes at Discovery Park. One of the unique aspects of Discovery Park is its expansive size that allows for a wide range of habitats, thus making it a relatively high hotspot of biodiversity within Seattle. We are interested in coding all instances in which the participant makes note of these unique aspects of Discovery Park, including lists of plant/animal species they noticed, and/or an appreciation or enjoyment of the several distinct landscapes within the park. As urban development continues to

rise, we are at risk of losing places like Discovery Park that are rich centers of biodiversity both within and across ecosystems/landscapes.

Coding Results:

Coding the 320 participants' narrative data with an Interaction Pattern Analysis yielded 331 discrete Interaction Patterns across participants and 520 Interaction Patterns in total. Though there were 325 total respondents, five of the Nature Language respondents did not make it clear in their narrative that they had ever been to Discovery Park and therefore were omitted from the analysis.

The following data is reported in two distinct ways: 1) frequency in terms of percentage of the IPs or factors[12] out of the total coded IPs, and 2) frequency in terms of percentage of participants whose data contained at least one of the IPs or distinguished factors out of the total number of participants. In other words, some data will be reported in terms of total IPs that occurred, some will be reported in terms of total participants, and some will be reported in terms of both measures. The reason for reporting data using these two different methods is to provide the reader with two similar, yet distinct, specificities of information. Reporting the data in terms of total IPs depicts general usage of Discovery Park, whereas reporting the data in terms of total participants can control for situations in which some participants' Nature Language can weigh the data more toward one IP or feature, which could lead to a misinterpretation of the results. To illustrate, consider the following excerpt from a participant's Nature Language:

> "On our walks we have **seen raccoons, possums, eagles, and numerous other birds**. Once we **saw a young buck deer** by the entrance at the corner is Emerson and 36th Avenue West."

The bolded text identifies the five code-able IPs:

[12] In this context, a "factor" is referring to one of the seven features (large, open space; varied and relatively unmanaged landscapes; biodiversity; vistas; "big nature"; quietness; solitude) that collectively define Discovery Park's "relative wildness," which is a post-hoc analysis outlined in the Discussion section.

1. Seeing raccoons
2. Seeing possums
3. Seeing eagles
4. Seeing birds
5. Seeing buck deer

If data were only reported in terms of percentage out of the total coded IPs instead of also being reported in terms of percentage out of total participants, it is possible that participants like the one above could weigh results more heavily toward the overarching *Encountering Wildlife* IP, which would imply that interacting with wildlife is one of the most important aspects of Discovery Park. However, this may not be true if only a few participants are having a majority of these interactions, which is therefore why some data is also reported in terms of total participants. In the above example, there would only be one count of the overarching *Encountering Wildlife* IP out of the total number of participants, which ensures that all participants' interactions have equal weight in their implications for Discovery Park's usage.

Though our coding methods aim to quantify our qualitative data, we hope to still retain the rich nuance of language provided by our participants through the additional reporting of our participants' qualitative "Nature Language" data. For each subheading, data will first be reported in terms of its quantitative significance followed by direct qualitative examples to illustrate the meaningfulness of Discovery Park, as told by the participants.

Most Frequent Interaction Patterns:

There were six Most Frequent IPs (MFqIPs) distinguished based on their higher frequencies out of the total IPs and across participants – specifically, the MFqIPs presented below are what we call "higher order IPs," which are groupings of specific IPs from the 331 total coded

IPs within one IP that more generally encompasses the many specific IPs within its group. As previously noted, our method of coding IPs retains the specificity of each participants' language, which would yield a difference between two very similar yet distinct IPs (like *walking on trail* versus *walking trails*). Given that frequencies reported for specific IPs would provide an unhelpful level of specificity, the method of reporting frequencies for higher order IPs provides more useful and parsimonious information for those interested in Discovery Park's usage. Similarly, the higher order IPs may be too general to be useful for certain interests in Discovery Park's usage, which is why we also present frequencies of "overarching IPs" below each higher order IP. An overarching IP is more specific than a higher order IP, yet is still itself a more general grouping of the specific IPs from the total coded IPs. Below is a breakdown of the six higher order MFqIPs, their specific frequencies in terms of total IPs and participants, and further breakdowns of overarching IPs and their frequencies within each higher order MFqIP:

1. *Encountering Wildlife* (141 IPs – 27% of total IPs // 72 participants – 22% of participants)
    a. *Watching birds* (68 IPs – 48% of this MFqIP)
    b. *Seeing sea life* (32 IPs – 21% of this MFqIP)
    c. *Seeing land animals* (8 IPs – 6% of this MFqIP)
    d. Other (10 IPs – 7% of this MFqIP)
2. *Following Established Trail* (71 IPs – 14% of total IPs // 69 participants – 22% of participants)
    a. *Walking trail* (54 IPs – 76% of this MFqIP)
    b. *Running trail* (13 IPs – 18% of this MFqIP)
    c. Other (4 IPs – 6% of this MFqIP)

3. *Walking to Destination Spot in Nature* (41 IPs – 8% of total IPs // 34 participants – 11% of participants)
    a. *Walking to beach* (32 IPs – 78% of this MFqIP)
    b. *Walking to bluffs* (9 IPs – 22% of this MFqIP)
4. *Gazing out at Puget Sound or Mountains* (32 IPs – 6% of total IPs // 28 participants – 9% of participants)
    a. *Gazing out at Puget Sound* (13 IPs – 41% this MFqIP)
    b. *Gazing out at mountains* (8 IPs – 25% of this MFqIP)
    c. *Gazing out at sunset* (7 IPs – 22% of this MFqIP)
    d. Other (4 IPs – 13% of this MFqIP)
5. *Walking along Edges (Beach or Bluffs)* (28 IPs – 5% of total IPs // 24 participants – 8% of participants)
    a. *Walking the edge of water and shoreline* (21 IPs – 75% of this MFqIP)
    b. *Walking the edge of bluff and meadow* (7 IPs – 25% of this MFqIP)
6. *Walking with Dog (or Running)* (20 IPs – 4% of total IPs // 20 participants – 6% of participants)
    a. *Walking with dog* (16 IPs – 80% of this MFqIP)
    b. *Running with dog* (4 IPs – 15% of this MFqIP)

Below is one participant's unedited Nature Language data that shows the rich style of reflection that was often provided to us and eventually distilled to specific IPs (marked below with the bolded text):

> "I have come to Discovery Park ever since I was young and have been in awe of its natural beauty for 20 years. Every time I visit the

> park, I experience nature in a new and breathtaking way. I often **walk along the beach** and **gaze at the gorgeous Olympic Mountains**. I have **seen orca whales, seals, fish, eagles, herons, shorebirds, and many other sea creatures** in their natural habitat all from shore. I always take long, calming **walks on the trails** and I appreciate the vast amount of native vegetation. Several times I have **seen owls, rabbits, foxes, and snakes**. The meadow shines in sunset and the sunrise, which are my favorite times to go for a run and take advantage of the hilly terrain. I remember when I was young my favorite place to go was the visitor center. This park has sparked a passion in me for protecting the rest of the natural beauty Washington State has left. I cannot describe the beauty Discovery Park had brought into my life. I only hope to one day share these experiences with future children and show them the last place in Seattle where the land's natural beauty is preserved."

The above example contains fourteen IPs in total, and four of the six overarching Most Frequent IPs – *walking along beach* is coded within *Walking along Edges (Beach or Bluffs)*, *gazing at Olympic Mountains* is coded within *Gazing out at Puget Sound or Mountains*, *seeing orca whales, seals… snakes* (totaling 11 IPs from the list of wildlife) are coded within *Encountering Wildlife*, and *walking on trails* is coded within *Following Established Trail*.

Most Meaningful Interaction Patterns:

Of the 520 total coded IPs, 52 IPs were coded as Most Meaningful IPs (MMIPs), with 39 participants noting at least one MMIP. Higher order IPs within the total coded MMIPs are reported below with their frequency relative to the 52 total MMIPs:

1. *Encountering wildlife* (20 IPs – 38% of MMIPs)
2. *Walking through open space* (14 IPs – 27% of MMIPs)
3. *Exploring beach* (7 IPs – 13% of MMIPs)
4. *Finding views* (6 IPs – 12% of MMIPs)
5. Other: (5 IPs – 10% of MMIPs)

The below Nature Language, with bolded text identifying the code-able IPs and the bolded and underlined text identifying the MMIP, again exemplifies the challenge of capturing and distilling the meaningfulness of Discovery Park to its visitors as told through their narrative data:

> "It's always meaningful to come to this park. It's a total gem in the middle of the city. I live in Wallingford and come here all the time. There are **two big leaf maples at either end of the park I always stop and hug**. This is meaningful to me because my father was a big tree hugger. He's dead now. I imagine I'm hugging him when I reach for the trees. I **frequently hike from the top of the hill down along the bluffs**, **down to the beach**, **along the beach** from South to North Beach, back **up the hill**, **through the loop trail**, and back to the visitor's center parking lot. It's just a fantastic way to just be with myself or a friend I'm hiking with. This place cannot be replaced. Just love it!"

In the above example, the MMIP *hugging big leaf maples* is one of the five IPs included in the "Other" category, as it was too unique to be grouped with the four main overarching MMIPs. Yet even as *hugging big leaf maples* was included in our coding as a MMIP, the relevant background information of this participant's memory of their deceased father is not retained in the coded IP, therefore why it is important to supply some of our qualitative results alongside the quantitative.

Themes:

Reported below are the six themes classified during the coding process with their frequencies relative both to the total instances of all coded themes (96 total coded instances of a Theme) and across all participants (320 total participants). A few examples of the qualitative data for each theme are also reported below the descriptive statistics:

1. *Absence of Civilization* (30 instances – 31% of total coded Themes // 9% of total participants)

> *"I love running the Loop Trail in this park. It makes me feel like I am out in the wilderness, and it is quiet but for the birds. The huge old trees create a beautiful shaded canopy."*
>
> *"Went to the park to get away from the cement of the city... to walk and relax."*
>
> *"I had been going crazy for weeks listening to the sounds of the city and I needed a break and some exercise. It felt good to listen to the water, and smell the sea, and have a moment of peace."*

2. *Seclusion* (15 instances – 16% of total coded Themes // 5% of total participants)

"I prefer to walk alone, as I enjoy the solitude, something so hard to find in the city. When walking alone in the park, I can imagine I am miles away from Seattle. The air seems fresher, and the sounds of wind rustling leaves or causing branches to "moan" as they rub together help to remind me of my smallness in relation to the world."

"Discovery Park is a gem. It's the one place in Seattle where there [are] places to be in nature and find solitude."

"I got there early in the day (8:30) and it was really quiet and serene on the trail that I was walking on. I just got to listen to the birds and sounds of the trees and it was really pleasant."

3. *Generating New Social Relationships* (10 instances – 10% of total coded Themes // 3% of total participants)

"We crossed paths with a few people and made sure to say hello. With kind smiles to offer, we learn mannerisms of nature. We are not much for hellos downtown compared to the trails. We very quickly learn the mannerisms when immersed in nature. As simple as offering kind smiles and salutations, it seems we can give as much as nature does."

"We had a spotting scope and were able to show others some of these birds. It is always fun to show the birds to people who do

not have binoculars or spotting scopes. When they can see birds close up they have an appreciation for how amazing the birds really are."

"Discovery Park is great for experiencing other people in a pleasant environment. I suppose the natural surroundings play a role in how we act towards one another in that environment."

4. *Deepening Existing Social Bonds* (9 instances – 9% of total coded Themes // 3% of total participants)

"Going here with people has allowed me to connect and talk with them about conversation that simply does not happen in everyday life. I guess I feel closer to myself and those around me when I leave Discovery Park, and that is why it is so special to me."

"Walking along the loop trail with my two boys, we stopped to admire a tree with multiple trunks and noticed all around the unique qualities of each tree before us. My ten year old hopped up into the center of one tree and enjoyed his heightened vantage point. My other son and I had to coax him down, as I think he could have perched there for hours. How much longer would my tween and teenage son enjoy taking a walk in their woods with their mom? I savored each moment."

"I went for a trail run with some fellow students I met. This place gave me somewhere to escape the city and to be submersed in nature, just what I needed to recenter, refocus, and reengage with the world, my studies, and my peers. It gave us a place to run on beautiful, soft trails and to get to know each other better, improving our mental, physical, and social healths."

5. *Nature Sparking Memories/Happy Rumination* (7 instances – 7% of total coded Themes // 2% of total participants)

"There are two big leaf maples at either end of the park I always stop and hug. This is meaningful to me because my father was a big tree hugger. He's dead now. I imagine I'm hugging him when I reach for the trees."

"I will share with you that there is one place I visit that has special meaning to me – it's a high meadow that overlooks the bay. This is quiet open place and when I'm here, I most often think of and remember my Mom who passed not long ago. This meadow was one of the stops on my first hike in the park after my Mom passed last November...I spent a long time here remembering her. And, while I was looking out on the water a long cruise ship was pulling out on its way to Alaska...I had just taken my Mom on our first cruise - to see Alaska - a few months before her death - and we had sailed on

our ship together in this same pass. So now, this stop is always a time for me to check in with my Mom and my remembrances of her."

"Watching the boats pass by on a relatively secluded beach is very relaxing, especially when it is a clear day and you can see the Olympics silhouetted in the distance. The experience reminds me of spending time on San Juan Island every summer while growing up. Discovery Park is one of my favorite places in Seattle."

6. *Biodiversity/Diverse Landscapes* (25 instances – 26% of total coded Themes // 8% of total participants)

"Discovery Park is I think the best park in Seattle. It's a special place. It combines so many things- birds and other wildlife, meadows, vistas, beaches and forest."

"Particularly meaningful for me was getting to see western waterfowl species that I don't get to see often in the east as well as the experience of seeing the marine life microcosm in contrast to the views of the Olympic mountain range macrocosm."

"Unlike other parks in Seattle, Discovery park has the ocean, the forest, and all those who inhabit those areas with an incredible view of the Olympic Mountains. Coming into Discovery Park is like a walk into the woods, where ferns, trees, and birds dominate the landscape. Eventually, the trail leads to a meadow

unlike anything I have seen in Western Washington. Continuing on leads to a path down to the beach, where sea life can be observed with the beauty of the mountains behind it."

"Every time I visit the park, I experience nature in a new and breathtaking way. I often walk along the beach and gaze at the gorgeous Olympic Mountains. I have seen orca whales, seals, fish, eagles, herons, shorebirds, and many other sea creatures in their natural habitat all from shore. I always take long, calming walks on the trails and I appreciate the vast amount of native vegetation. Several times I have seen owls, rabbits, foxes, and snakes. The meadow shines in sunset and the sunrise, which are my favorite times to go for a run and take advantage of the hilly terrain."

Psychological Descriptions, and Nature Actions/Nature Descriptions:

The results from our coextensive coding levels – Psychological Descriptions, Nature Actions, and Nature Descriptions – are reported below in terms of the IPs to which they were "linked." Of the "Linked-IPs" for each of these three coding levels, results are presented in terms of the frequencies of the reported higher order IP within the total Linked-IPs for its respective category, Psychological Descriptions or Nature Actions/Descriptions. In other words, the number of IPs reported for PLIPs and NLIPs signify the total number of specific IPs that were coded under the higher order, and the following percentage reports the percent of that higher order IP out of the total coded Linked-IPs, for Psychological Descriptions or Nature Action/Descriptions.

For each higher order IP reported for Psychological Description and Nature Action/Description Linked IPs, examples of the coded PLIPs and NLIPs (identified with

underlined text) and the coded IP to which they were "Linked" (identified with bolded text) are shown in below each descriptive statistic.

1. Psychological Description Linked-IPs (PLIPs):

→ 97 Total PLIPs

a. *Exploring large open green space* (44 IPs – 45% of PLIPs)

"I was there with my two kids (4 & 1) and we were exploring the new playground. They loved exploring the heights of it, as well as the spiderweb network of ropes. We also loved just **following random trails** that intersect all over. It was a meaningful way to explore nature without a defined path."

b. *Encountering wildlife* (22 IPs – 23% of PLIPs)

"Hanging out at the overlook on a break from a trail run and **seeing an eagle** flying from a nearby tree out into the water to catch a fish. This inspired me to feel strong and even in empowering me to move forward and open a private practice."

c. *Exploring beach* (17 IPs – 18% of PLIPs)

"A friend and I **swim in the Puget Sound** every Sunday morning --year round! We've been doing this for nearly ten years… It is so peaceful and serene--a big dose of the outdoors in two hours.

More often than not, a seal or two or three will show up and swim with us. The seal cubs are curious and like to swim close to get a good look at us. It's magical! And it's always a treat to see

the eagles fly overhead, and to see heron, crows, and all sorts of birds around us.

We are thankful to have such a beautiful place nearby to connect with nature in such a meaningful way."

d. *Finding views* (8 IPs – 8% of PLIPs)

"I went to the park with my friend because it is a sunny day. **Watching the sunset** near the water makes me feel peaceful. I was surprised at the current. They were still, like a piece of enormous oil painting."

2. Nature Action/Nature Description Linked-IPs (NLIPs)[13]:

→ 146 Total NLIPs

a. *Encountering wildlife* (62 IPs – 42% of NLIPs)

"I ride my bicycle to the park often, and love to sit on a driftwood log and **watch the sanderlings** play keep away with the waves. One morning I **saw a bald eagle** snatch a fish out of the waves just off the lighthouse point."

b. *Exploring large open green space* (42 IPs – 29% of NLIPs)

"The **hike in the wooded glens** was very peaceful, serene, and beautiful. We **saw several old growth trees**. The **air smelled** earthy and the foliage was extremely lush."

c. *Exploring beach* (16 IPs – 11% of NLIPs)

[13] The results from the Nature Action and Nature Description coding levels are later discussed in tandem with each other to answer one research question, thus why the results of the two levels are combined.

"…It was low tide, and we were able to walk out to **see a few anemones** on small rocks and anchored to the sand. I don't even remember seeing anemones directly in sand before... is that common?"

d. *Finding views* (12 IPs – 8% of NLIPs)

"My wife and I hiked the loop trail. We were visiting Seattle for the first time but love hiking outdoors so did that as perhaps an escape from the normal city sightseeing. What we discovered on the loop trail was the huge sized maple leaves, being able to **see the snowcapped [Mt.] Rainier and [Mt.] Olympus** from one vantage [point], and the bark, moss, and warts of the ancient trees."

e. *Walking to destination spot in nature* (5 IPs – 3% of NLIPs)

"A memory in particular that we enjoy was just this last February. We took a nice **walk down to the beach**, enjoying the trees, with peeks at the water and sun along the way. Upon reaching the beach, we were treated to a beautiful and dynamic sky, which quickly turned a little too dynamic on us. Our fun at the beach became a mad dash away from a hail storm!"

Relative Wildness:

Upon coding the data, it became apparent that many participants had described several features and experiences that, in their perception, make Discovery Park more special than other urban parks. Such features include Discovery Park's relatively high levels of biodiversity, its "big nature" like old growth trees, its varied and relatively unmanaged landscapes, its large open space,

its expansive vistas, and its quietness and solitude – all of which collectively comprise the concept we operationally define as Discovery Park's "relative wildness." These constituents of relative wildness are supported by the literature, in which researchers discuss various definitions of "wild" nature as a system intentionally unmanaged by humans (Heynen et al., 2006; Thomas, 2006; Turner, 1996).

It is important to emphasize the *relative* aspect of relatively wild nature, which allows for distinctions to be made along a continuum of "wild" to "domestic" forms of nature based on the operationally defined features in addition to the general degrees of social mediation that produced one environment relative to another. In contrast to others that define wild forms of nature as "wilderness" – a term argued to be a harmful social construct that upholds norms of oppressive colonial capitalism[14] (Cronon, 1998) – the relativity of my definition operates under the assumption that there is no pure form of nature that is separate-from or uninfluenced by humans.[15]

[14] Because this research defines nature along a spectrum of relatively wild to domestic, it is crucial to draw upon literature that clarifies the distinction between typical uses of the term "wilderness" and my use of the alternate term "relatively wild." As Cronon (1995) writes in The Trouble with Wilderness, "[w]ilderness embodies a dualistic vision in which the human is entirely outside the natural… The place where we are is the place where nature is not" (p. 11). As seen in the Nature Language data, people often speak of Discovery Park as a relic of wilderness within an urban setting, and Part Three will illustrate why this mindset can be counterproductive. In our idealization of wilderness uncontaminated by humans, the problem of humans seeing themselves in a position of dominance over nature, as opposed to being inextricably linked with nature, is further reproduced. In order to address the intersection of local/global social/environmental issues, many people will need to shift their mindset of being in domination over other humans and non-human nature to being in relation with the global community, a shift which necessitates viewing oneself as a part of the larger whole. This shift in perspective requires breaking down certain dichotomies embedded within the modes Westernized people typically perceive humans, animals, nature, culture, race, gender, class, purity, and so on, though this shift in paradigm will not occur if we continue to perpetuate the notion that "real" or "better" nature remains pure and uninfluenced by humans. This is why we use a spectrum of relatively wild to domestic nature in order to illustrate that a major distinguishing factor between the two terms is the amount of social control and mediation (stemming from Western colonization) within the larger context of the interaction, without the implication that relatively wild versus domestic nature is a dichotomy of "pure" versus "contaminated."

[15] This is not only because of how human induced climate change has affected all parts of the globe, but also because everything is both a part-of and a product-of nature. Therefore, a proper definition of relatively wild nature must also address the *type* of social mediation that produced the form of nature in question, where forms of nature produced through colonization and capitalism are arguably less wild relative to other forms of nature that have co-become in respectful balance and relation with the rest, without retaining a disproportionate burden from the impacts of colonization and capitalism.

Though the relativity of this definition allows for a more holistic understanding of a given environment, one might argue that the definition necessitates a comparison with another environment to establish whether one could be more or less wild relative to the other. While our study's lack of a control environment is a limitation, we argue that it is reasonable to assume that the operationally defined constituents of Discovery Park's relative wildness are in fact more on the wild end of the spectrum when compared to more typical urban parks specifically within the City of Seattle, which are generally comprised of some combination of highly manicured grass and trees. While other urban parks in Seattle are generally on the more wild end of the spectrum (i.e. Carkeek Park, Magnuson Park, and Ravenna Park) when compared to urban parks in other cities, they still do not encompass the same scale and variety of features that constitute Discovery Park's level of relative wildness. The combination of Discovery Park's sheer size and diversity of landscapes sets itself as relatively wild compared to other Seattle parks that have fewer and smaller-scale features of wildness.

An analysis was therefore conducted on all coded IPs in order to assess how many of our participants' interactions with nature depended on Discovery Park's relative wildness. This analysis involved going through each coded IP – focusing on its nature noun, the larger context of its Nature Language, and the Nature Action, Nature Description, and/or Psychological Description to which it was linked – to determine whether one or more of the defined "features" (i.e., "varied/relatively unmanaged landscapes," "biodiversity," etc.) were involved in the participant's interaction. As a simple example, *hugging big leaf maple* was coded as an IP that depended on Discovery Park's relative wildness because a big leaf maple tree reasonably falls under the definition of "big nature" in Discovery Park. As a more complex example, consider the following data entry, where the code-able IPs are underlined and the relevant context is bolded:

> "My wife and I walk the **loop trail** every other day (rain or shine). It's a wonderful outdoor experience, **lots of solitude** and **seeing the seasons change**."

In this example, the coded IP is *walking the trail,* which was coded as dependent on Discovery Park's relative wildness. This example illustrates the need for a holistic coding system that takes in the full context of each data entry, as the coded IP has to do with several of the features that define relative wildness, such as "large, open space" (the Loop Trail moves through miles of open green space), "varied/relatively unmanaged landscape" (the Loop Trail moves through what could reasonably be defined as varied and relatively unmanaged, and the participant notes seeing the effects of changing seasons on the landscape), and "solitude" (the bolded context within the Nature Language shows that the participant found solitude).

Given that a relatively wild environment is comprised of a combination of the features identified above, our coding system does not seek to create distinct categories that delineate between each feature of Discovery Park's relative wildness. This is why our analysis yields results in terms of Discovery Park's "relative wildness" rather than in terms of the frequency of each feature. Our coding system is meant to show the value of these features in their non-fragmented entirety, rather than identifying which one feature could be the most important to save while allowing the others to be threatened with development. The point of understanding Discovery Park as a relatively wild environment is to value and appreciate how all of its intricate parts and systems work together to afford an experience that is potentially more meaningful and beneficial compared to those afforded by more domestic urban parks.

Of the 520 total coded IPs, 77% of the IPs (399 IPs) depended on Discovery Park's relative wildness. When analyzed in terms of the percentage of total participants, we found that 53% of

participants (168 participants) had at least one interaction that depended on Discovery Park's relative wildness.

To further investigate whether Discovery Park's relative wildness has an effect on what participants found most meaningful in Discovery Park, the same analysis was conducted specifically on the 52 Most Meaningful IPs in order to assess their dependence on Discovery Park's relative wildness. Of the 52 MMIPs, 95% of those IPs (50 MMIPs) depended on Discovery Park's relative wildness. When analyzed in terms of percentage of the 39 participants who noted an especially meaningful experience with nature, 95% of those participants (37 participants) had an interaction that depended on Discovery Park's relative wildness.

Upon conducting the same analysis on only the 97 IPs that were linked to coded Psychological Descriptions (PLIPs), we found that 96% of those PLIPs (93 PLIPs) depended on Discovery Park's relative wildness. Similarly, of the 67 participants whose data contained a coded PLIP, 96% of those participants (64 participants) had an experience that depended on Discovery Park's relative wildness.

The same analysis applied to the 146 IPs that were linked to coded Nature Actions and Nature Descriptions (NLIPs) showed that 95% of those NLIPs (138 NLIPs) depended on Discovery Park's relative wildness. Similarly, of the 90 participants whose data contained a coded NLIP, 94% of those participants (85 participants) had an experience that depended on Discovery Park's relative wildness.

Demographics:

Demographic data was measured across five variables: age, gender, ethnicity, household income, and zip code.

In terms of age, 14% of participants were between ages 18-24, 16% were between ages 25-34, 16% were between ages 35-44, 20% were between ages 45-54, 16% were between ages 55-64, 14% were ages 65 and over, and 4% preferred not to answer.

In terms of gender, 60.94% of participants identified as female and 35.63% identified male. .63% of participants marked "Not Listed/Other" and 2.81% preferred not to answer.

In terms of ethnicity, 80% of participants identified as White, 8% identified as Asian/Pacific Islander, 1% identified as Hispanic/Latinx, 1% identified as African American/Black, 0% (1 participant) identified as Native American/American Indian, 3% identified as multiracial, and 7% preferred not to answer.

In terms of household income, 11% of participants make less than $25,000, 4% make between $25,000 and $34,999, 4% make between $35,000 and $44,999, 13% make between $50,000 and $74,999, 10% make between $75,000 and $99,999, 20% make between $100,000 and $149,999, 21% make $150,000 or more, and 17% preferred not to answer.

Discussion:

Our data analysis yielded results showing that Discovery Park is, in fact, being used in a number of important, diverse, and meaningful ways by current visitors that have not yet been characterized or factored into its land-use debate, with 331 discrete Interaction Patterns coded across participants and 520 coded Interaction Patterns in total. In other words, there were 331 different ways that people spoke about meaningful experiences in the park, which is reflective of the many human-nature interactions that actually occurred.

To answer the question of how people currently interact with nature at Discovery Park, six overarching IPs were discovered based on their high frequencies and phylogenetic significance across all coded IPs. The most frequently occurring IPs centered around *Encountering Wildlife* (27% of total IPs // 22% of participants), which suggests that Discovery Park's wildlife is an especially important aspect of people's experience in the park. People's encounters with wildlife included *watching birds* (48% of IPs), *seeing sea life* (23% of IPs), and *seeing land animals* (6% of IPs), all of which depend on a relatively large and healthy ecosystem that can support a level of biodiversity that draws people's attention in ways that often do not happen within urban sprawl. Participants (22%) also often discussed their experience *Following Established Trails*, which accounted for 14% of the total coded IPs. As supported by the data, Discovery Park's expansive trail system is one of its most attractive features, which is also evidenced by the fact that its Loop Trail (spanning 2.8 miles) is a designated National Recreation Trail. Participants were often also *Walking to Destination Spots in Nature* (8% of total IPs // 11% of participants), with their main destination being the beach (78% of IPs) and sometimes the bluffs (22% of IPs). As supported by the data, Discovery Park's expansive beach and bluffs seem to afford the experience of *Gazing out at the Puget Sound or Mountains*, which accounted for 6% of total IPs and 9% of participants.

Some participants (8%) were also *Walking Along Edges (of Beach or Bluffs)*, accounting for 5% of the total coded IPs, which could mean that Discovery Park's visitors gravitate towards an affordance of the land's unique variety of landscape – a feature that creates hotspot "edges" of action between two distinct ecosystems. Lastly, data also brought light to the fact that some visitors (6% of participants) were *Walking with Dogs* in the park, which indicates that dog-owners also have an investment in the debate surrounding Discovery Park's usage and development.

Though proponents for Discovery Park's development may concede that nature and parks benefit the community, they may not understand how the fragmentation that comes alongside the development of only certain parts of the park can detract from the benefits afforded by Discovery Park in its *entirety*. In fact, a member of the Seattle City Council was quoted saying the Fort Lawton Redevelopment Plan is "a huge opportunity, and it's a rare opportunity to gain access to a significant portion of public land from the federal government at no cost," which illustrates how some decisionmakers may not actually be aware of the full "costs" of further development (Macz, 2019). Discovery Park is unique because of its large open space, its varied and relatively unmanaged landscapes (forests, meadows, and shoreline), its high levels of biodiversity for both flora and fauna, its expansive vistas, its "big nature" (e.g. old growth trees), and the quietness and solitude that are collectively afforded by what we define as Discovery Park's "relative wildness." In fact, 53% of participants wrote about meaningful experiences that depended on Discovery Park's relative wildness, a number that increases when analyzed in terms of interactions (77% of total IPs) that depended on the park's relative wildness. Rather than thinking of "nature" in terms of its discrete features, we should begin to understand it as a holistic system with a myriad of aspects and functions that are inextricably linked to one another. A fragmented and less wild Discovery Park is therefore not able to afford the same benefits as it does now, and many of its

features may not withstand the significant ecological disruption that comes along with urban development.

A deeper analysis of the data showed that a portion (10%) of the total coded IPs were noted as "most meaningful" relative to their other interactions with nature in Discovery Park. Of those interactions noted as "most meaningful" (MMIPs), participants were *Encountering Wildlife* (38% of MMIPs), *Walking through Open Space* (27% of MMIPs), *Exploring the Beach* (13% of MMIPs), and *Finding Views* (12% of MMIPs). Surprisingly, most of the IPs noted as "most meaningful" (92%) depended on Discovery Park's relative wildness. Similarly, of the participants who noted a most meaningful experience in Discovery Park (8% of participants), 93% had an interaction that depended on Discovery Park's relative wildness. This finding is further in support of maintaining a holistic Discovery Park, as data shows that people are having especially meaningful experiences with the relatively wild parts of the park.

Beyond investigating what people find meaningful about Discovery Park, this research also aims to understand what aspects of Discovery Park lead to a more positive emotional state and/or greater wellbeing as a result from their experience. To answer this question, we inferred the participants' "positive emotional state" from their written language surrounding their experience, coded as Psychological Descriptions that could be "Linked" to coded IPs, and we infer a link to "greater wellbeing" based on the PLIPs that were written with a positive emotional valence and therefore denote a positive affect. While there is debate over identifying a causal relationship between positive affect and greater wellbeing, much of recent literature shows that "positive affect engenders success," possibly because "positively valenced moods and emotions lead people to think, feel, and act in ways that promote both resource building and involvement with approach goals" (Lyubomirsky et al., 2005; Elliot & Thrash, 2002; Lyubomirsky, 2001). Participants often

wrote that they "enjoyed" or "loved" a certain experience they had within Discovery Park, which (in the context of our study) were both written with a positive valence. For example, one participant wrote:

> "I love to hike the loop trail in the park starting at the south parking lot. I love looking for rocks along the beach. I love that such a large, beautiful, and scenic park exists in Seattle. I particularly love the views from the bluff."

An analysis of the 97 IPs (19% of total coded IPs) that were embedded within positive interpretations of participants' experiences[16] within Discovery Park showed that there were four overarching IPs that were linked to such reflections that signify a positive emotional state. Interestingly, whereas the above analyses of the data show that *Encountering Wildlife* was both the most generally frequent and most meaningful IP, a deeper analysis of the IPs linked to Psychological Descriptions showed that *Exploring Large Open Green Space* was instead the most commonly occurring kind of interaction – accounting for 45% of the Psychological Description Linked-IPs (PLIPs) – that was embedded within participants' positive language surrounding their experience. Further in line with our previous analyses, *Encountering Wildlife* was also a frequently occurring experience (23% of PLIPs), with *Exploring the Beach* (18% of PLIPs) and *Finding Views* (8% of PLIPs) notably arising as well. Expanding on these findings, if having enough open space to move both on and off trail is the main factor that positively influences people's emotional state, then those who are in support of some kind of development that could disrupt the flow of Discovery Park's open space should be wary of their claims that changing the land could bring

[16] This is extrapolated from the Psychological Descriptions that were linked to coded IPs (PLIPs), given that there were no negative PLIPs.

more benefits to the community, as it seems people are already benefiting from this space in meaningful yet previously uncharacterized ways.

Some might argue that certain forms of development within Discovery Park may not detract from Discovery Park's large open space, as people can still walk through developed areas. Yet a further analysis of these Psychological Description Linked-IPs show that Discovery Park's relative wildness is a hugely important aspect of the open space, as 96% of the IPs embedded within positive interpretations of participants' experience depended on Discovery Park's relative wildness. This finding implies that "open space" itself is not enough to bring greater wellbeing to visitors of Discovery Park; rather, open space in tandem with features afforded by Discovery Park's relative wildness (like biodiversity, varied landscapes, vistas, quietness and solitude) is likely what will afford more deep and positive interpretations of one's experience, bringing great benefit to the community. Policymakers should therefore use this data to inform future decisions of how to manage Discovery Park's open space, shifting their focus to increase visitor's interactions with relatively wild open space rather than domesticating the environment with urban development.

In addition to characterizing human-nature interactions within Discovery Park, this research also aims to generate a "Nature Language" – a way of speaking about important and meaningful interactions with nature – in order to deepen and enrich the human-nature relationship. A symptom of the deteriorating human-nature relationship often seen in Western cultures is that people are also losing the ability to speak about the ways in which they can interact and find meaning with the non-human world. Language is said to shape reality, thus bringing light to the importance of encouraging people to speak and write more about what is happening for them when they interact with nature, as this could aid in promoting a more positive human-nature relationship.

Our data is illustrative of people's lacking engagement with nature through their language, with only 28% of the total participants writing about their interactions with nature in a manner that provided significant detail and depth of the surrounding experience.[17] More specifically, only 28% of the total coded IPs were embedded within a richer description of the surrounding nature scenario. Even though our participants often wrote rich and detailed narratives, these numbers could be indicative of the general population's non-mindful engagement with the non-human environment, as this data could mean that a majority of participants were providing relatively surface-level description of their experiences, which could reflect their lack of deeper engagement with nature.

In order to *increase* more mindful reflections like those of the 28% of participants reported above who meaningfully engaged with nature through language, thus generating a Nature Language, it is important to first understand what kinds of interactions and what aspects of Discovery Park afford this important kind of depth of meaning and mindful noticing of nature. Upon analysis, data shows that of the interactions embedded within a greater description of nature, 42% were *Encountering Wildlife*. This statistic further strengthens our initial findings that Discovery Park's ability to support this kind of biodiversity is likely one of its main attractions to visitors. Additionally, *Exploring Large Open Green Space* accounted for 29% of the descriptive interactions, thus implying again that Discovery Park's vast amount of open green space is not underutilized; instead, interactions afforded by large open green spaces can benefit the community through enriching their connection with the natural environment and fostering environmental stewardship and care. Additionally, *Exploring the Beach* (11% of NLIPs), *Finding Views* (8% of NLIPs), and *Walking to Destination Spot in Nature* (3% of NLIPs), also accounted for significant

[17] To clarify, this information is extrapolated from the IPs that were linked to Nature Descriptions and Nature Actions (NLIPs), as explained in the Nature Language Coding Manual Development and Coding Results sections.

portions of the interactions that seem to have afforded a greater depth of interaction between the participant and nature. These five overarching IPs seem to also mirror the features that collectively constitute Discovery Park's relative wildness. In fact, an analysis of these description-linked IPs revealed that 95% of those participants' interactions actually depended on Discovery Park's relative wildness. This evidence should help guide general community members and policymakers to see the importance of places like Discovery Park that are more wild relative to most other urban parks. A healthy human-nature relationship benefits both parties; if nearly all of the interactions that signified participants' greater depth of engagement with nature depended on Discovery Park's relative wildness, then we should not only strive to maintain the collective features that constitute this unique aspect of Discovery Park, but also expand accessibility and actively encourage more people to visit and engage with its natural environment.[18]

Interestingly, of the 320 participants, not a single one had provided narrative data that described feelings of negativity surrounding their experience in Discovery Park.[19] The fact that our participants *only* described positive experiences while visiting Discovery Park is likely to be a result of the many physiological and psychological benefits that come from interacting with nature, as many recent studies show (Bratman et al., 2012, Hartig et al., 2014, Frumkin et al., 2017). The point of our study, however, is not to simply provide more evidence for such benefits; instead we hope to expand on such studies by bringing light to the importance and beauty of the depth of experience that happens when people interact with relatively wild nature.

For example, Nature Sparking Memories/Happy Rumination – one of the seven themes found in our data – describes a special experience that a few participants (2% of total participants) felt noteworthy enough to share in their narrative. As opposed to the typical rumination– involving

[18] This issue will be discussed in greater depth in Part 3.
[19] The only exception being a few participants mentioning their desire for stricter enforcement of leashed dogs.

a repetitive mulling over negative thoughts – that happens more often to those living in urban environments, our idea of *happy* rumination describes the same pattern of remembrance but with positive thoughts and memories. While "mindfulness" – a full awareness of the present moment – is often seen as a result and benefit of interacting with nature, this type of "happy rumination" found in our data could help illuminate the many intricacies at the mechanistic level of human-nature interaction, which could complicate the idea that one can simply get their prescribed dose of cookie-cutter "nature" and expect the same benefits as one who could more freely move through relatively wilder forms of nature that afford such great depth of experience.

Limitations:

The coding system devised for this type of data attempts to "model" human-nature interaction at Discovery Park, meaning that a certain level of reduction happens between the information provided by the participants and the information that is coded. In other words, one of the limitations of this study is that our data does not fully encompass the vast amounts of ways people described their meaningful human-nature interactions in Discovery Park. This is because the ways in which people wrote their narratives oftentimes did not fit in with our method of standardizing Interaction Patterns, as illustrated by the below example from our data:

> "Once I came here as a substitute childcare provider at the preschool. We took the kids outside, as about 80% of the program is outdoors. It was one of the most engaging and exciting days of work I've ever had. The sheer amount of space gave the kids so much autonomy. I loved walking around with them and **observing plants**, teaching them to respect the living things they played with (like not climbing on small trees) and engaging with the environment by playing hide and seek. Most of the time I feel that I have to push myself to maintain focus on the children during work – It's awfully easy to space out and wait for conflict to arise then intervene, which is the most 'energy conserving' way to do childcare. When we were out in the park it was much easier to stay focused on the kids experience. I think this was mostly because they weren't fighting over finite things like Legos or a toy kitchen, but just playing in a large space. This made for a super fun time in general for all of us. As a substitute I have been to many different camps and preschools, they often blend together but this one stands out. I attribute this to the fact that we were outdoors in this undeveloped park."

Coding this response at the Interaction Pattern level would yield only one result, *observing plants,* which clearly does not embody all that the participant had experienced. This limitation is why our study team had decided to create the coextensive coding categories (Psychological Description, Nature Action, Nature Description) to supply more information for analysis that was not coded as Interaction Patterns. Of course, even with the coextensive coding categories our analysis provides only a limited perspective on all that is happening in Discovery Park.

Similarly, the results from this study can only speak to the ways in which people are *writing* about their interactions in Discovery Park, which we then extrapolate to uncover the actual interactions that took place. Our study may therefore be limited in the sense that it speaks mostly to the ways our participants are personally thinking and writing about what they did, rather than a third-party observer coding the interactions of those in Discovery Park. Yet this may not be a true "limitation," as our first-person narrative data could reflect the most prominent interactions in Discovery Park instead of being muddled by coding the infinite instantiations of interaction patterns that are constantly enacted in the park.

The generalizability of this study is also limited in the sense that the data provided by our 320 participants may not be representative of the entire population that visits Discovery Park. Though our study team tried to recruit participants from diverse populations and backgrounds, our methods of data collection (which did not control for factors like the time of day, and necessitated a computer or phone with internet access) may have obstructed certain groups of people from participating, possibly explaining why a majority of our participants are of a White upper-class population. That said, it is also possible that our participants' demographics are indeed in line with the population that mostly accesses Discovery Park, which may speak to the necessity of increasing access and diversifying the populations that benefit from Discovery Park.

Regarding our population's demographics, one limitation may stem from the fact that we are severely lacking in the perspectives of Indigenous communities, specifically those of the Duwamish tribe or others who were involved in or affected by the colonization of Discovery Park and the proceeding Fort Lawton protests. While this demographic disparity could be due to methodological problems with participant recruitment, it is also possible that the Nature Language survey itself may not have been presented or perceived as a safe or inclusive space that could welcome possible perspectives of trauma that may be associated with Discovery Park. This lack of representation from Indigenous communities may explain why the results from our Psychological Description Linked-IPs showed only feelings of positivity from our participants, as our mostly White upper-class population is not likely to be impacted by historical trauma in the same way that Indigenous communities could be. Future studies should address this limitation by actively involving Indigenous and other marginalized communities, possibly with the use of focus groups.

Finally, one potential limitation to this study results from the possible impact of Environmental Generational Amnesia (EGA) on our participants. EGA refers to the phenomenon in which younger generations come of age with a more degraded form of nature than that of their predecessors, which over time can lead to a perpetually degrading environment being accepted as the new baseline for what constitutes as relatively wild nature, as one cannot remember something that they had no personal experience with. This phenomenon may complicate our methods, as our data reflects the interactions and values of participants who likely have a more degraded baseline for what constitutes as "nature," while we make inferences based on these results – that possibly reflect a relatively degraded perception of nature – to characterize deep and meaningful relationships with nature. That said, this need not be a limitation, as the potential impact of EGA

on our data can serve as a reminder for the need to constantly push back on general perceptions of what constitutes an acceptable baseline of relatively wild nature. While the tremendous depth of experience detailed by our participants may not reflect those of people who came of age with less degraded environments, our data is still valid and reflects the fact that we can still form meaningful human-nature relationships in times of significant environmental degradation. Yet the point remains that while we can still benefit and develop meaningful relationships with degraded forms of nature, we must not be satisfied or accept these forms as the new normal. We must continue to push for maintaining the remaining forms of nature in addition to *restoring* that which has been degraded to a wilder state, especially for the sake of marginalized communities that have significantly less access to relatively wild environments.

Part Three

The Global Significance of Maintaining Relatively Wild Nature: A Central Claim for the Just Management of Discovery Park

As seen with the unfolding debate over Discovery Park's management, the ways in which general land-use decisions are made often overlook the deeper ethical considerations regarding the influence of colonial capitalism on many of today's intersecting environmental and social problems. Without addressing the systemic problems that are produced through capitalism, the major issue of large-scale human domination[20] remains unaddressed, which further results in the emergence of parallel forms of oppressions over both humans and non-human nature. Given this global problem of domination, it is important to further explore the benefits that could be afforded by human interaction with relatively wild nature, which could address this global problem through its potential to foster virtues of mindfulness, care, and cooperation in our communities. The years-long debate over whether or not to allow development within or around Discovery Park is a microcosm of how large-scale societal norms of capitalistic domination can create conditions in which environmental and social problems are pitted against one another, often leading to narrow and unsatisfactory outcomes that further a growing rift between fellow advocates for justice who should instead recognize their shared interests. This rift ultimately inhibits the collective power of the people that could affect greater change through working toward a shared goal of fostering a more virtuous society for the better treatment of humans and non-human nature.

The argument that capitalistic cultures are produced through – and re-produce – systems of domination, expansion, and the oppression of people who were perceived as less-than-human

[20] As discussed in the Introduction, when I write about "human" domination, I mainly refer to the large-scale and systemic forms that emerge from people who support capitalistic cultures that were founded upon (and continue to benefit from) colonization. This distinction acknowledges arguments that seek to place greater responsibility on colonial and capitalistic cultures, rather than marginalized and developing communities who did not play a role in the development of environmental and social issues like climate change.

is a central but often overlooked ethical theme behind both environmental and social problems. Recent scholars address this intersection, discussing how human oppression of nature is inherently connected and parallel to human oppression of other humans (Kim, 2015; Merchant, 1992; Rose, 2004). Given this connection, policy decisions that seek to achieve justice or affect large-scale positive change must therefore work with this understanding of how the relevant environmental and social issues *do* in fact intersect, so as to avoid decisions that settle for outcomes that only address symptoms, rather than the cause, of the deeper issues brought about by capitalism.

To illustrate ways in which our means of addressing such issues could improve, consider the land-use debate over Discovery Park. Set to develop areas on the outskirts of Discovery Park to address Seattle's growing homeless crisis, the now-approved Fort Lawton Redevelopment Plan will begin its five-year construction phase in 2021 and include:

1. 238 affordable housing units (85 formerly homeless senior units, plus one manager unit; 100 affordable rentals; 52 affordable homeownership units)
2. 26.1 acres of parks and recreation area
3. Two multipurpose fields
4. 266 parking spaces

(*Fort Lawton Army Reserve Center Redevelopment Plan*, 2019).

Though this decision can satisfy some claims for justice – as it practically houses the homeless – it ultimately falls short of its greater potential to utilize the power of a large and seemingly progressive city like Seattle to, at the minimum, ignite conversation about the urgent need to restructure the ways in which environmental and social problems are addressed. The Fort Lawton Redevelopment Plan itself is not the problem, as it is only currently set to further develop an already-developed space, it is supported by the Daybreak Star and United Indians of All Tribes

community, and actually includes a plan to add five acres of forest to Discovery Park (*Fort Lawton Army Reserve Center Redevelopment Plan*, 2019). Rather, it is both the interconnected historical/societal factors that have created the need for this plan in addition to the style of the land-use debates themselves that illustrate deeper issues within this case study of Discovery Park.

My main concern is that people involved in the debates over the potential development of Discovery Park were unfamiliar with the connection between the land's environmental/social problems and the land's colonial capitalistic history, which cultivated a style of debate in which the environmental and social activists were essentially competing against one another to achieve their separate goals instead of understanding the need to collectively fight for a more holistic solution. The various land-use debates were often framed as having two main interests: "pro-environmentalists" who were against any potential development in Discovery Park and were seen as NIMBY ("not in my backyard") elitists, and "social justice advocates" who were in support of some form of the land's development and seen as apathetic to environmental degradation. With this "environmental *versus* social" framing, stakeholders were not well situated to connect the issues and understand the deeper reasons for why supporting the maintenance of relatively wild forms of nature could in fact bring environmental and social advocates together in the necessary efforts to pressure the City of Seattle to enact larger *structural* changes that prioritize the long-term interests of marginalized humans and non-human nature through efforts toward decolonizing the city.

While it is beyond the scope of my project to fully discuss the complexities of Seattle's structurally embedded racism[21] and attempts (or lack thereof) to address the resulting homeless

[21] This is in reference to "racial restrictive covenants" that continue to uphold norms of segregation within the deeds of homeowners' land across Seattle. Though no longer enforced, the language specific to deeds of Magnolia residents (surrounding the area of Discovery Park) still reads, "No person or persons of Asiatic, African or Negro blood, lineage, or extraction shall be permitted to occupy a portion of said property, or any building thereon; except domestic servants

crisis, it is important to note that – parallel to climate change and other intersecting environmental/social problems – the homeless crisis is a symptom of the systemic and structurally embedded norms of capitalistic domination within Western society. The homeless crisis is not "caused" by a lack of housing, and so we must not be satisfied by solutions that result in developing the few remaining accessible areas of open green space in urban environments to provide more affordable housing units.[22] Though the city *should* indeed provide more affordable housing, decisionmakers must still understand the importance of maintaining relatively wild forms of nature in the face of increasing oppressive urban development; instead, decisionmakers could seek locations that are already developed (to curb gentrification) and are better situated to *not* contribute to the further fragmentation, domestication, and oppression of relatively wild environments and its dependents.[23]

may actually and in good faith be employed by white occupants of such premises." Specific to the Magnolia Briarcliff area, deeds state, "No person other than one of the White race shall be permitted to occupy any portion of any lot in this plat, or of any building at any time thereon, except a domestic servant actually employed by a White occupant of such building." ("Racial Restrictive Covenants," n.d.). There is no doubt that the oppressive systems embedded within the structure of Seattle continue to affect the ways in which marginalized people are treated today.

[22] It is not my intention to discount the tremendous positive impact that these housing units will have for those who will live there, as they are communities that are disproportionately burdened by Seattle's surging property values and typically have the least access to wild nature. Though this redevelopment plan will not "solve" the homeless crisis, we must still acknowledge that it will bring direct benefits to some who have been marginalized in our society.

[23] Gentrification is, of course, a significant contributor to Seattle's homeless crisis. Though Seattle's City Council recently passed a measure to build around 6,000 affordable housing units, this is well below the estimated 150,000 units that the city needs right away. This measure attempts to address the problem of gentrification by requiring developers to either include a small number of affordable housing units or to give money to a city fund meant to build affordable housing elsewhere, though what often happens is developers choose to pay a sum of money to the city to avoid including affordable housing units for "marketing reasons" (Read, 2019). The leniency of this measure prevents the necessary progress that could curb gentrification and alleviate homelessness while still maintaining relatively wild environments; a consequence of this measure is that developers continue to push low-income residents out of their communities without offering a short-term transition or long-term solution. The blatant prioritization of the developers and wealthy incoming residents by the City of Seattle is evidence of the deep seeded problems with the structure and governance of our society. The unabated gentrification also impacts the few resources available to provide shelter for Seattle's homeless population; two of the city's young adult homeless shelters (ROOTS and PSKS) will soon be forced out due to developers purchasing their property to construct more *un*affordable housing complexes, which is estimated to displace "roughly half of Seattle's entire emergency shelter bed capacity for young adults" (Brownstone, 2019). If the City of Seattle continues to overlook its problem with gentrification by allowing further displacement of marginalized communities, the pressures of this urban development will continue to only fall on the remaining open green spaces within the city, as those spaces also have less representation and less perceived value in these processes as compared to the city's developers and wealthy residents. Again, the forced choice between supporting the homeless and maintaining a natural environment is a likely result of the innate colonialist and capitalistic biases of those in

Solutions that choose to further develop an already-degraded environment for the sake of marginal progress could have long term environmental and social consequences. Consider that according to the City of Seattle, much of Fort Lawton's future population will be seniors and veterans – populations that likely need more resources than other populations. Fort Lawton is poorly situated in the city to give these populations easy access to grocery stores, hospitals, and other necessities, and these populations are also less likely to have access to personal cars for easy transport. If there is demand for local resources to serve the needs of Fort Lawton's soon-to-be population, then the supply must somehow follow. With a nearby population that is clearly in need of resources, and without decisionmakers who understand the significance of maintaining relatively wild nature under pressures of urban development, one can imagine a future in which the boundaries of development are pushed into relatively wild areas like Discovery Park to provide resources at the expense of an environment that the community also needs, while not exploring other more effective solutions.

Ironically, our means to address the problem of globalized human domination – through deconstructing the oppressive societal structures produced through colonization – is impeded by our own inherent upholding of these norms as we function within the system. Of course, it is difficult to look inward and recognize ourselves as part of the problem that we seek to address.[24] A solution that truly aims to address intersecting environmental and social issues must therefore actively seek a radical restructuring of our society and work against these parallel oppressions,

positions of power, a bias that is clear given the city's prioritization of profit and wealth at the expense of marginalized humans and non-human nature.

[24] I can also recognize my own place and contribution within this system. I work within Western science and draw upon Western ways of knowing to establish almost-universal truths about the way people should be. Still, this operation within the system is sometimes necessary in order to have a voice and provide tractable information and solutions. As Kim (2015) writes, this "activists' dilemma" is often such that, "in order to enter the public debate and be heard, one must acceded to the discursive terms set by the powerful, but in doing so, one may end up compromising that which one is fighting for" (p. 141).

shifting the perspectives that we hold about ourselves to be more in relation with our global community instead of only valuing the welfare of certain privileged individuals. Such a shift in perspective should encourage the deconstruction of human domination and superiority, and instead nurture the virtues of mindfulness, care, and cooperation toward humans and non-human nature.

It is possible that, given the data from our study outlined in Part Two, human interaction with relatively wild nature is one potential key to fostering a virtuous lifestyle in which one lives in respectful balance and relation with human and non-human others. To reiterate, results suggest that human interaction with relatively wild nature in Discovery Park could foster more positive emotions (drawing on PLIPs dependency on relative wildness), more mindfulness (drawing on NLIPs dependency on relative wildness), and meaningful social engagement (drawing on "Generating New Social Relationships" and "Deepening Existing Social Bonds" themes). Though the significance of human interaction with relatively wild nature should be explored in future research, there is evidence in support of nature's general ability to foster cooperative behavior (Zelenski et al., 2015), and to "bring individuals closer to others" (Weinstein et al., 2009). Though not specifically defining nature in terms of its relative wildness, some research also shows that high levels of biodiversity is a predictor of nature's restorative benefit (Wood et al., 2018), which suggests some potential for similar effects from relatively wild forms of nature.

I theorize that relational attitudes can foster relational behaviors in ourselves and in others, in the same way that "cooperative behavior cascades in human social networks" (Fowler & Christakis, 2010). Further, the impact of relational attitudes and their resulting behaviors can extend beyond defined "human social networks," as it could be argued that interaction with relatively wild environments encourages a cycle in which relational interactions are afforded, in

turn producing relational attitudes that foster virtuous characteristics and lifestyles that again seek to nurture and maintain relatively wild environments.

The outcomes of local environmental and social policy decisions have global implications, and in the face of pressing global issues like climate change it is now vital to understand and utilize the power of this multi-scale connection. Local issues that sit at the intersection of pressing environmental and social issues, like the debate over Discovery Park's use and potential development, must therefore situate themselves within their global context and understand how the framing of their problems and solutions can impact decisions that are made on a global level. Reframing environmental and social issues as *parallel* and *inherently dependent* on one another could illuminate the fundamental connections between large and small-scale environmental/social issues, ultimately working to confront the underlying patterns of domination and colonization that continue to negatively impact humans and non-human nature across the globe.

A major problem is that without an understanding of the importance of maintaining accessible relatively wild nature, decisionmakers are likely to keep sacrificing its seemingly underutilized space in order to satisfy their constituents with some form of tractable change while unaware of what is being lost. Communities who are faced with environmental and social policy decisions should therefore seek to understand how the relevant issues are connected through dominating and oppressive systems of capitalism, as the shared efforts for justice would likely lead to a deconstruction of such systems that perpetuate environmental and social problems. Ultimately, those involved in cases like Discovery Park must be cautious about the momentum and impact that comes alongside their allowance of further urban development – boundaries are constantly pushed at the expense of relatively wild environments, which detracts from the land's overall impact and

can counterproductively serve to promote the parallel oppressions of already-marginalized people that other advocates for justice seek to address.

Conclusion

> *In the years to come there will be almost irresistible pressure to carve out areas of the park in order to provide sites for various civic structures or space for special activities. There will in the future be structures and activities without number for which, it will be contended, this park can provide an "ideal site" at no cost. The pressures for those sites may constitute the greatest single threat to the park. They must be resisted with resolution. If they are not, the park will be so fragmented that it can no longer serve its central purpose. Only those activities and only those structures should be accepted which are in harmony with the overall theme, character and objective of the park. There must be a deep commitment to the belief that there is no more valuable use of this site than as an open space.* ~ "Future Structures and Activities," Discovery Park Master Plan (Kiley, 1972, p. 4).

The local land-use debate over Discovery Park illustrates how decisionmakers and community members can often lack the tools and knowledge to meaningfully address intersecting environmental and social issues, on both local and global scales. There are parallels between the local case of Discovery Park and global issues like climate change, in which systems of colonial capitalism perpetuate these kinds of problems; rather than confronting the commonalities between these environmental and social factors that fuel these debates, these components were addressed as separate claims and framed with competing interests and goals, which led to an outcome that may have prioritized one claim for justice at the expense of another. Within the context of connecting the local problem of Discovery Park to global problems like climate change, this thesis utilized various methods to holistically understand and better address the relevant environmental and social issues that deal with the relationship between rapid urbanization and the degradation of remaining open green spaces, a cycle that ultimately detracts from our human and non-human community's ability to flourish and support one another.

The trouble with the debate over Discovery Park begins with the city's non-acknowledgment of the land's history of colonization, which not only erases the traumas of Indigenous people, but also illuminates deeper problems with the ways local and global environmental/social issues are addressed. Those tasked with addressing these issues of justice are most often operating within colonial capitalist cultures, and these underlying influences can obstruct (intentionally or not) the needed efforts toward dismantling oppressive societal structures that uphold and perpetuate these environmental and social problems. The absence of discussion surrounding the impact of the land's colonization on its past, present and future use not only plagued the "pro-environmentalists" who fought to maintain Discovery Park in its totality, but also affected the advocates for social justice who fought to develop the outskirts of Discovery Park in order to create affordable housing for some of Seattle's homeless population. Without discounting the determination of those on both sides of the debate, as their effort and drive to achieve forms of justice are valuable in the face of pressing environmental and social problems, those who advocate for positive change must still push further to understand how their inherited colonialist biases can hinder our collective ability to transform the systems that are designed to keep power in the hands of the powerful. Reframing our understanding of the causes and solutions of local/global environmental/social problems, which would involve an acknowledgement of the inherent interconnectedness and shared goals of these problems, can encourage methods that finally seek to change the harmful ways in which certain groups of people value and interact with the rest of the global community rather than only addressing short-term symptoms.

Instead of fighting to create impenetrable boundaries with neoliberal norms that regulate the usage of Discovery Park's land, and instead of fighting to develop already degraded landscapes without seeking other solutions, those involved in the debate over Discovery Park instead could

have fought to understand *why* there continues to be situations in which certain groups of humans dominate over other marginalized humans and non-human nature. From this understanding, efforts should then be put toward deconstructing the underlying systems that create these problems in the first place, while enacting strong policies that curb the local effects of structurally embedded colonial capitalist domination.[25] Societies that emerged from and continue to uphold such systems often perpetuate perceptions that draw distinctions between the individual and the collective, placing more value on the needs and rights on the individual. Simply put, the focus on the individual can allow people to act without care toward the collective community, as they are not encouraged to understand how actions that seemingly benefit themselves can harm another and eventually lead to global harm that affects all.[26]

Human interaction with nature, specifically *relatively wild* forms of nature, could be one of the more promising methods that encourages people to shift away from beliefs and actions that can subtly uphold colonial capitalist norms of human domination. Human interaction with relatively wild nature has potential to shift such individualistic perspectives toward more collectivist perspectives, as our data showed that a majority of participants' most engaging and meaningful interactions actually depended on Discovery Park's relative wildness. Further, a majority of the participants who had either positively reflected on the emotional component of

[25] An example of a strong policy decision that actually seeks to address structurally embedded domination would be curbing the rampant gentrification that oppresses and displaces marginalized populations. As discussed in Footnote #18, the City of Seattle's current efforts to address gentrification carelessly provide loopholes that allow developers to further gentrify the city, while providing the city with a sum of money intended to house the homeless elsewhere. Again, this measure results in the continued gentrification and consequential development of publicly owned land, which is usually open green space and places like Discovery Park, to house these displaced populations.

[26] It is important to note that the harms felt globally are not felt equally (as marginalized populations feel most of the burden), which could be a part of the reason why individuals continue to act in harmful ways despite their knowledge of harm caused elsewhere. Ways to decrease this "psychological distance" between those who cause harm and those who feel the harm is another important area for future research, and should explore ways to increase empathy and connectedness while not counterproductively provoking inaction through fostering feelings of hopelessness or being overwhelmed.

their experience and/or had written about their experience in ways that reflected a deeper connection to their surrounding natural environment had also depended on the features that co-constitute Discovery Park's relative wildness. It is also worth noting the themes that arose from participants' narratives, in which participants touched on the land's ability to afford feelings of "absence of civilization" and "seclusion," along with their appreciation of Discovery Park's "biodiversity and diverse landscapes," all of which could afford the occurrence of other themes regarding the "deepening of existing social bonds," the "generation of new social relationships," and "nature's sparking of happy memories (happy rumination)."

Though this study's results are preliminary and our methods did not seek to establish a causal relationship, policymakers and community members should still take a precautionary approach[27] that moves forward with applying this preliminary information in real-world settings to further encourage more human interaction with relatively wild nature, rather than moving toward developing the remaining open space, as it can only help the situation. While the specific effects of human interaction with relatively wild nature, as opposed to relatively domestic nature, should be a focus of future research, other researchers should be cautious about how their operation within Western science and its defined "ways of knowing" can still perpetuate the problem of domination if left unacknowledged, as it usually is in mainstream research. As described in Part Two, our method of applying an Interaction Pattern Analysis pushes back on overly reductionistic research; this approach builds upon a foundation of rich, qualitative narrative data and involved the creation of a novel coding system that can quantify the diversity of styles and meaning behind the participants' written language. Other researchers should utilize a similar methodology when

[27] A precautionary approach generally draws on the "precautionary principle," which is defined in the environmental sciences as having four central components: "taking preventive action in the face of uncertainty; shifting the burden of proof to the proponents of an activity; exploring a wide range of alternatives to possibly harmful actions; and increasing public participation in decision making" (Kriebel et al., 2001).

tasked with characterizing the use and value of another park or any given environment, from relatively wild to domestic and urban forms of nature.

Once accepting the claim that maintaining relatively wild nature could play a significant role in efforts for achieving global justice, the once-separate environmental and social claims should instead be understood and addressed together to achieve long-term sustainable solutions. This reframing could bring environmental and social activists together in their shared goals of breaking down persistent norms of colonial capitalist tendencies toward human domination, ultimately working toward fostering a virtuous global community that lives in respectful relation with one another.

References

Alexander, C. (1977). *A Pattern Language: Towns, Buildings, Construction.* USA: Oxford University Press.

Anxiety and Depression Association of America, *Depression*. (n.d.). Retrieved September 21, 2017, from https:adaa.org/understanding-anxiety/depression.

Army Disrupts Indian Claim on Ft. Lawton. (1970, March 9). *Seattle PI*.

Bell, S. L., Phoenix, C., Lovell, R., & Wheeler, B. W. (2015). Seeking everyday wellbeing: The coast as a therapeutic landscape. *Social Science & Medicine. 142.* 56-67.

Bratman, G. N., Hamilton, J. P., & Daily, G. C. (2012). The impacts of nature experience on human cognitive function and mental health. *Annals of the New York Academy of Sciences, 1249* (1), 118-36.

Bratman, G. N., Hamilton, J. P., Hahn, K. S., Daily, G. C., & Gross, J. J. (2015). Nature experience reduces rumination and subgenual prefrontal cortex activation. *PNAS Proceedings of the National Academy of Sciences of the United States of America.*

Brave Heart, M. (1998). The return to the sacred path: Healing the historical trauma and historical unresolved grief response among the lakota through a psychoeducational group intervention. *Smith College Studies in Social Work,68* (3), 287-305.

Brownstone, S. (2019, June 8). In Seattle, fast-paced redevelopment displaces the safe spaces for homeless young adults. *Seattle Times*.

Bubeck, D. (2000). Feminism in political philosophy: Women's difference. In Miranda Fricker & Jennifer Hornsby (eds.), *The Cambridge Companion to Feminism in Philosophy*. Cambridge University Press.

Charbonneau-Dahlen, B., Lowe, J., & Morris, S. (2016). Giving Voice to Historical Trauma Through Storytelling: The Impact of Boarding School Experience on American Indians. *Journal of Aggression, Maltreatment & Trauma, 25*(6), 598-617.

Cronon, W. (1995). The trouble with wilderness: or, getting back to the wrong nature. In: *Uncommon Ground: Toward Reinventing Nature.* New York: Norton.

Crutzen, P., Ehlers, E., & Krafft, T. (2006). The “Anthropocene”. In Earth System Science in the Anthropocene (pp. 13-18). Berlin, Heidelberg: Springer Berlin Heidelberg.

Discovery Park History. (n.d.). Retrieved June 2019, from seattle.gov: https://www.seattle.gov/parks/find/centers/discovery-park-environmental-learning-center/discovery-park-history

Eisenberg, C. & Seager, S. T. & E. Hibbs, D. (2013). Wolf, elk, and aspen food web relationships: Context and complexity. Forest Ecology and Management. 299. 70–80. 10.1016/j.foreco.2013.01.014.

Elliot, A. J., & Thrash, T. M. (2002). Approach–avoidance motivation in personality: Approach and avoidance temperaments and goals. Journal of Personality and Social Psychology, 82, 804 – 818.

Foreman, D. (2013). Five feathers for the cannot club. In P. H. Kahn, Jr. & P. H. Hasbach (Eds.), *The rediscovery of the wild* (pp. 181-232). Cambridge, MA: MIT Press.

City of Seattle Office of Housing (2019). *Fort Lawton Army Reserve Center Redevelopment Plan*. (Version 2).

Fowler, J.H., & Christakis, N.A. (2010). Cooperative Behaviour Cascades in Human Social Networks. *Proceedings of the National Academy of Sciences of the United States of America, 107 12*, 5334-8.

Frumkin, H., Bratman, G. N., Breslow, S. J., Cochran, B., Kahn, P. H., Jr., Lawler, J. J., . . . Wood, S. A. (2017). Nature contact and human health: A research agenda. *Environmental Health Perspectives, 125*(7), 075001-1. DOI: 10.1289/EHP1663

Hartig, T., Mitchel, R., de Vries, S., & Frumkin, H. (2014). Nature and health. *Annual Review of Public Health, 35i, 207-28.* doi:10.1146/annurev-publhealth-032013-182443.

Held, V. (1995). The Meshing of Care and Justice. Hypatia, 10(2), 128-132.

Heynen, N., Kaika, M., & Swyngedouw, E. (2006). Urban political ecology: politicizing the production of urban natures. In: *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism.* London and New York: Routledge.

Hill, T. (1983). Ideals of Human Excellence and Preserving Natural Environments. *Environmental Ethics, 5*(3), 211-224.

Kahn, P. H., Jr. (2002). Children's Affiliations with Nature. *Children and Nature*. Cambridge, MA: MIT Press.

Kahn, P., & Hasbach, P. (Eds.). (2013). *The Rediscovery of the Wild*. Cambridge, MA: MIT Press.

Kahn, P. H., Jr., & Hasbach, P. H. (2012). *Ecopsychology: Science, totems, and the technological species.* Cambridge, MA, US: MIT Press.

Kahn, P. H., Jr., Lev, E. M., Perrins, S. P., Weiss, T., Ehrlich, T., & Feinberg, D. S. (2018, March). Human-nature interaction patterns: Constituents of a nature language for environmental sustainability. *Journal of Biourbanism*.

Kiley, D. (1972, February). Park Objective & Primary Function. *Master Plan for Fort Lawton Park.* Seattle, Washington, USA.

Kim, C. (2015). *Dangerous crossings: Race, species, and nature in a multicultural age*. New York, NY: Cambridge University Press.

Kriebel, D., Tickner, J., Epstein, P., Lemons, J., Levins, R., Loechler, E. L., Quinn, M., Rudel, R., Schettler, T., Stoto, M. (2001). The precautionary principle in environmental science. *Environmental health perspectives*, *109*(9), 871–876. doi:10.1289/ehp.01109871

Lin, J., Thompson, T.J., Cheng, Y.J., Zhuo, X., Zhang, P.H., Gregg, E.W., & Rolka, D.B. (2018). Projection of the future diabetes burden in the United States through 2060. *Population Health Metrics*.

Lyubomirsky, S., King, L., & Diener, E. (2005). The Benefits of Frequent Positive Affect: Does Happiness Lead to Success? *Psychological Bulletin, 131*(6), 803-855.

Lyubomirsky, S. (2001). Why are some people happier than others?: The role of cognitive and motivational processes in well-being. American Psychologist, 56, 239 –249.

Macz, B. (2019, June 11). Seattle City Council clears Fort Lawton Redevelopment Plan. Retrieved from https://queenannenews.com/MobileContent/News/News/Article/Seattle-City-Council-clears-Fort-Lawton-Redevelopment-Plan/26/337/40243.

Merchant, C. (1992). *Radical ecology: The search for a livable world* (Revolutionary thought/radical movements). New York: Routledge.

Mills, L., E. Soule, M. & F. Doak, D. (1993). The Keystone-Species Concept in Ecology and Conservation. BioScience. 43. 219-224. 10.2307/1312122.

Moore, J. (2014). The Capitalocene, Part II: Abstract Social Nature and the Limits to Capital.

Moore, J. (2017). The Capitalocene Part II: accumulation by appropriation and the centrality of unpaid work/energy. *The Journal of Peasant Studies*. DOI: 10.1080/03066150.2016.1272587

National Institute of Diabetes and Digestive and Kidney Diseases, *Overweight & Obesity Statistics*, (2017, August 1). Retrieved September 21, 2017, from https://ww.niddk.nih.gov/health-information/health-statistics/overweight-obesity.

Paine, R. (1995), A Conversation on Refining the Concept of Keystone Species. Conservation Biology, 9: 962-964. doi:10.1046/j.1523-1739.1995.09040962.x

Plumwood, V. (1991). Nature, self, and gender: Feminism, environmental philosophy, and the critique of rationalism. (Special Issue: Ecological Feminism). *Hypatia, 6*(1), 3.

Racial Restrictive Covenants, Seattle Civil Rights & Labor History Project. (n.d.).Retrieved August 24, 2019, from https://depts.washington.edu/civilr/covenants.htm

Read, R. (2019, April 16). Seattle takes a small step against gentrification. *Los Angeles Times*.

Rose, D. B. (2004). *Reports from a wild country: Ethics for decolonisation*. Sydney, NSW: UNSW Press.

Roth, J. (1999). *Ethics after the Holocaust: Perspectives, critiques, and responses*. St. Paul, Minn.: Paragon House.

Slote, M. (2007). The ethics of care and empathy. London; New York: Routledge.

Smith, M., & Liehr, P. R. (2008). *Middle range theory for nursing* (2nd ed.). New York: Springer Pub.

Taylor, C. (1994). The Politics of Recognition. In Taylor, C., & Gutmann, Amy. (Eds), *Multiculturalism examining the politics of recognition*. Princeton, N.J.: Princeton University Press

The Debate Over Housing at Discovery Park, (2017, June 12). Retrieved September 21, 2017, from https://www.seattlemet.com/articles/2017/6/12/housing-at-discovery-park.

Turner, J. (1996). *The abstract wild*. Tucson, AZ: The University of Arizona Press.

Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224(4647). 420-421.

U.S. Census Bureau, (2016, December 8). New census data show differences between urban and rural populations. Retrieved September 21, 2017, from https://www.census.gov/newsroom/press-releases/2016/cb16-210.html.

Weinstein, N., Przybylski, A., & Ryan, R. (2009). Can Nature Make Us More Caring? Effects of Immersion in Nature on Intrinsic Aspirations and Generosity. *Personality and Social Psychology Bulletin*, *35*(10), 1315-1329.

Wood, E., Harsant, A., Dallimer, M., De Chavez, A.C., Mceachan, R.R.C., & Hassall, C. (2018). Not All Green Space Is Created Equal: Biodiversity Predicts Psychological Restorative Benefits From Urban Green Space. *Frontiers in Psychology*, *9*, 2320.

Zelenski, J., Dopko, R., & Capaldi, C. (2015). Cooperation is in our nature: Nature exposure may promote cooperative and environmentally sustainable behavior. *Journal of Environmental Psychology*, *42*, 24-31.

Appendix

Nature Language Website and Survey Questions

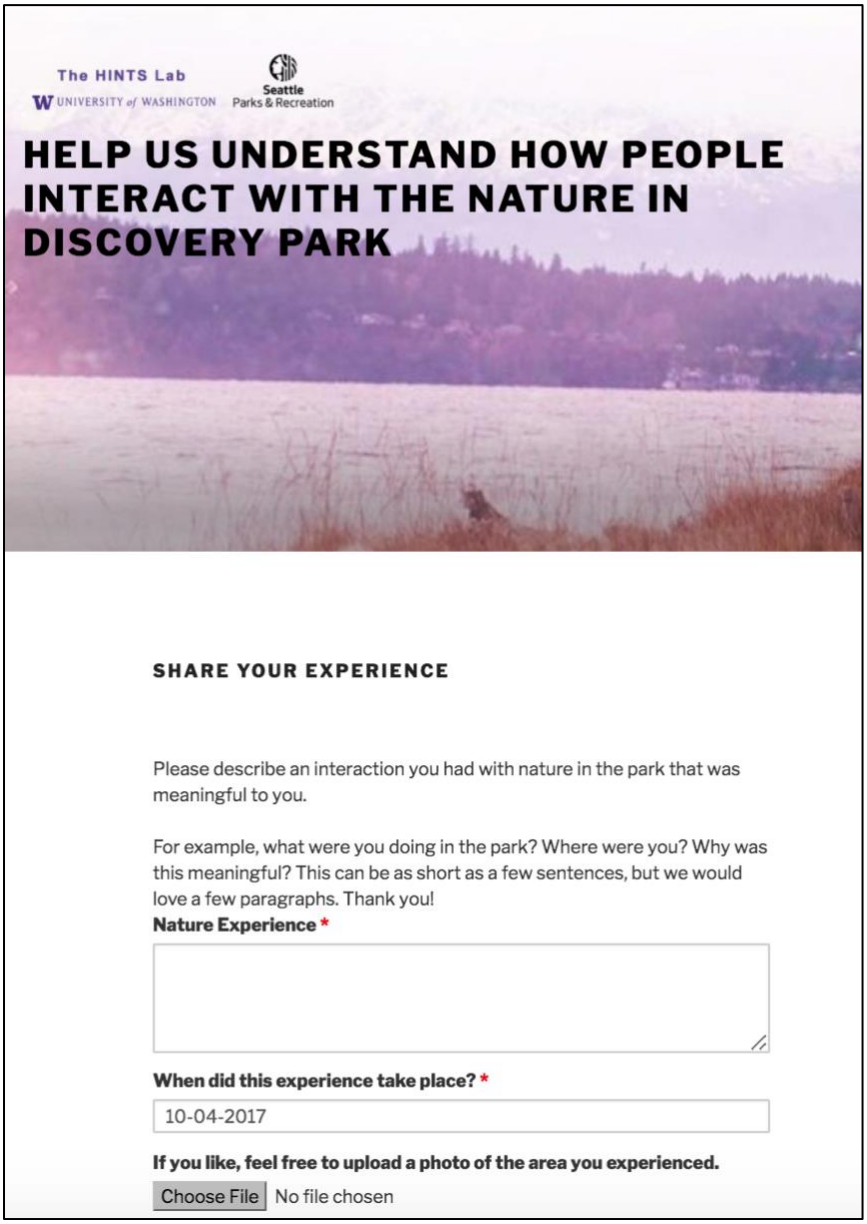

Figure 1. Nature Language Website. 2017

Which of these areas did you visit? Click all that apply. *

- Beach
- Tall Grass Meadow
- Short Grassy Lawn
- Forest Trail
- Daybreak Star Cultural Center
- Environmental Learning Center
- Lighthouse

How did you get to Discovery Park? *

- Bike
- Bus
- Personal Car
- Uber/Lyft or Rental
- Walk

What is your five digit zip code? *

What is your household income? *

- Less than $25,000
- $25,000 to $34,999
- $35,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $149,999
- $150,000 or more
- prefer not to answer

What ethnicity do you identify with? *

- African American/Black
- Asian/Pacific Islander
- Hispanic/Latino
- Native American/American Indian
- White
- Not Listed
- Prefer not to answer.

Figure 2. Nature Language Website. 2017

What is your gender? *

- Male
- Female
- Nonbinary
- Not Listed
- Prefer not to answer.

What is your age? *

- 18 to 24 years
- 25 to 34 years
- 35 to 44 years
- 45 to 54 years
- 55 to 64 years
- Age 65 or older
- prefer not to answer

Researcher Information:
For researcher information please visit http://depts.washington.edu/hints/people.shtml. The principle investigator for this study is Peter H. Kahn, Jr., Professor in Developmental Psychology and

Consent Agreement *

- I am over 18 years old and agree.

Submit

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Figure 1. Nature Language Website. 2017