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Los Angeles

**Doorway to Wonder:  
Charting New Environmental Education  
and Place-making Pathways in Urban Los Angeles**

A dissertation submitted in partial satisfaction  
of the requirements for the degree  
Doctor of Philosophy in Anthropology

by

Nicole Lannoy Lawson

2018

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## ABSTRACT OF THE DISSERTATION

Doorway to Wonder:  
Unsettling Environmental Education  
and Nature Place-making in Urban Los Angeles

by

Nicole Lannoy Lawson

Doctor of Philosophy in Anthropology

University of California, Los Angeles, 2018

Professor Jessica R. Cattelino, Chair

Mainstream American environmental education (EE) programs often place undue privilege on inquiry-based scientific epistemologies and settler colonial wilderness ideologies (Cronon 1995b, Wolfe 2006) as the primary drivers in determining program design. Those programs in the urban setting add an environmental justice layer to these frameworks, by focusing their efforts on underserved minority youth. Specifically, they take them *to* nature and teach through science in an effort to provide an informed, equitable experience that might cultivate a love of nature and future environmental stewardship. In Los Angeles, the programs offered by the century-old Los Angeles Audubon Society (LAAS) and a few other local non-profits and nature centers pride their innovative (though increasingly common) focus on *local* place-based nature

excursions for underserved youth, often seeking to foster environmental experiences within the source schools.

This project examines these questions through the primary lens of LAAS programs and their intentional focus on science-based environmental education within the Ballona Creek Watershed. To understand their work and its impacts on the communities they hope to transform, I draw on literatures in urban anthropology and political ecology, knowledge production, settler colonialism, and the racialization of nature. I focus on the following four aspects embedded in these programs: 1) construction of “real” urban nature, 2) the centrality of rational and inquiry-based science content, 3) the precarious potential of embodied nature experience, and 4) racialized natures and their relationship to place-based community-building.

Despite the transformative potential of urban environmental education, educators tend to (unwittingly) reproduce potentially restrictive hegemonic environmental values, knowledges, and practices without considering the historical context and ongoing socio-political inequities enabling them. This results in significant gaps and friction (Tsing 2005) between educators’ environmentalisms and their desires for inclusivity and justice in the environmental movement by targeting low-income communities of color. It is in the generative friction of these gaps that I suggest a rhizomic (Ogden 2011) environmental education paradigm forefronting the layered histories of local place, with an intentional integration of epistemological diversity, cultural history, and community experience to re-center environmental education as a key access point for a socially critical and ecologically aware urban citizenry.

The dissertation of Nicole Lannoy Lawson is approved.

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University of California, Los Angeles

2018

À mon papa, qui m'a toujours poussé à poursuivre mes rêves.

And to my partner, Michael: keep shining the light.

## TABLE OF CONTENTS

<b>TABLE OF CONTENTS .....</b>	<b>VI</b>
<b>LIST OF TABLES &amp; FIGURES.....</b>	<b>X</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>XI</b>
<b>CURRICULUM VITAE.....</b>	<b>XIII</b>
<b>INTRODUCTION.....</b>	<b>1</b>
<b>A GREEN LOS ANGELES? .....</b>	<b>1</b>
Nature imaginings .....	1
Urban greening .....	6
<b>ANALYTICAL LENSES .....</b>	<b>11</b>
Cultural production of nature-cultures .....	11
Urban anthropology.....	12
Urban political ecology & environmental justice.....	13
Knowledge production .....	15
Emplaced historicity.....	17
Racialization of nature.....	19
<b>ENVIRONMENTAL EDUCATION IN LOS ANGELES .....</b>	<b>22</b>
L.A. nature & culture .....	22
Origins in American environmentalism .....	26
Evolution of environmental education .....	29
<b>FIELD SITES AND METHODS.....</b>	<b>32</b>
A note on geo-theorizing & self-reflexivity .....	32
Topography of urban environmental spaces.....	34
Los Angeles Audubon Society .....	35
Ballona Creek Watershed.....	42
Ballona Wetlands Ecological Reserve.....	47
Kenneth Hahn State Recreation Area.....	49
<b>METHODS.....</b>	<b>51</b>
<b>CHAPTER MAP.....</b>	<b>53</b>
<b>CHAPTER I: “REAL” URBAN NATURE.....</b>	<b>55</b>
<b>INTRODUCTION.....</b>	<b>55</b>



<b>SETTLER COLONIAL UNDERPINNINGS .....</b>	<b>57</b>
Settler colonialism and political economy in Los Angeles .....	60
Settler colonial wilderness.....	60
Settler colonial indigeneity & racial segregation .....	63
<b>CRAFTING “REAL” NATURE .....</b>	<b>64</b>
Ballona Wetlands: Unaltered and unreachable.....	67
Kenneth Hahn SRA: Unaltered yet proximate .....	74
<b>WILDERNESS, INDIGENEITY, &amp; AUTHENTICITY .....</b>	<b>80</b>
Learning in and about “real” nature .....	80
Restoration.....	81
<b>NATIVE PLANTS .....</b>	<b>91</b>
What it means to be “native” .....	91
Removing invasive species.....	95
“Loving the native” .....	104
Authentic indigeneity .....	110
<b>CONCLUSION .....</b>	<b>123</b>
<b><u>CHAPTER II: PRECARITIES OF SCIENCE FOR JUSTICE .....</u></b>	<b><u>125</u></b>
<b>INTRODUCTION.....</b>	<b>125</b>
<b>DEMOCRATIZING SCIENCE PRACTICE.....</b>	<b>128</b>
Women in science .....	132
Environmentalists of color .....	134
Going public .....	135
<b>SCIENTIFIC ENVIRONMENTAL EDUCATION.....</b>	<b>142</b>
Inquiry-based (ecological) science .....	142
Next Generation Science Standards .....	147
Program Content.....	149
Documentation & naming .....	153
Scientific illustration & field guides.....	156
Microscopes & binoculars.....	160
Compasses & maps .....	162
<b>EXPANDING THE EPISTEMOLOGICAL FRAME .....</b>	<b>165</b>
Re-centering Tongva knowledge.....	167
Local knowledge .....	172
<b>CONCLUSION .....</b>	<b>176</b>
<b><u>CHAPTER III: FEARFUL EXPLORERS.....</u></b>	<b><u>178</u></b>
<b>INTRODUCTION.....</b>	<b>178</b>

<b>CONQUERING THE WILDERNESS, SORT OF.....</b>	<b>181</b>
Restricted trail wayfaring .....	183
Exploration and Discovery .....	187
<b>PHYSICALITY OF EXPERIENCE .....</b>	<b>191</b>
Don't touch .....	191
A visual experience .....	197
Embodied praxis.....	204
<b>THERE WAS SOMETHING WITH BIG TEETH!.....</b>	<b>208</b>
Loving to fear the wild .....	210
<b>CONCLUSION .....</b>	<b>218</b>
<b><u>CHAPTER IV: WHITE PRIVILEGE AND THE RACIALIZATION OF ENVIRONMENTALISM.....</u></b>	<b><u>220</u></b>
<b>INTRODUCTION.....</b>	<b>220</b>
<b>WHITE PRIVILEGE IN ENVIRONMENTAL STEWARDSHIP .....</b>	<b>225</b>
White privilege .....	225
Eurocentric (white) environmental stewardship.....	229
Implications for environmental education.....	232
The long game: future stewards .....	235
Subjugated environmental values & practice .....	236
Turning to representation .....	248
Alternative use.....	250
<b>CASE STUDY: BLACK HOMEPLACE ECOLOGIES.....</b>	<b>260</b>
Place-making .....	260
Black Beverly Hills .....	261
Community-building .....	265
Cultivating a Black middle-class greenspace .....	268
An ethnographic interlude: Opening the Stocker Trailhead .....	274
<b>CONCLUSION .....</b>	<b>280</b>
<b><u>CHAPTER V: RHIZOMIC ENVIRONMENTAL PEDAGOGY.....</u></b>	<b><u>281</u></b>
<b>INTRODUCTION.....</b>	<b>281</b>
<b>LINEAGE OF CULTURE/PLACE PEDAGOGIES .....</b>	<b>284</b>
Culturally responsive pedagogy .....	284
Place-based education .....	286
Critical pedagogy of place.....	288
<b>RHIZOMIC ENVIRONMENTAL EDUCATION .....</b>	<b>292</b>
Introducing the framework.....	292

LAAS as incubator setting.....	296
<b>COMMUNITY-BASED PLACE PEDAGOGY .....</b>	<b>298</b>
LAAS: Urban school-shed approach.....	298
Community-based learning from within.....	303
<b>EPISTEMOLOGICAL PLURALISM .....</b>	<b>308</b>
Plurality of knowledge .....	308
Individual lived experience .....	315
<b>SETTLER COLONIAL LAYERS.....</b>	<b>321</b>
“You are on Tongva Land” .....	321
<b>CONCLUSION .....</b>	<b>324</b>
<b><u>CONCLUSION .....</u></b>	<b><u>325</u></b>
<b>REFRAMING THE ENVIRONMENTALISMS OF NATURE EDUCATION.....</b>	<b>325</b>
<b>TOWARDS A RHIZOMIC ENVIRONMENTAL EDUCATION.....</b>	<b>329</b>
<b><u>APPENDICES .....</u></b>	<b><u>333</u></b>
<b><u>BIBLIOGRAPHY.....</u></b>	<b><u>344</u></b>

## LIST OF TABLES & FIGURES

Figure 1: Keep America Beautiful, Ad Council, 1971 .....	28
Figure 2: LAAS school-shed .....	41
Figure 3: Ballona Creek Watershed maps .....	43
Figure 4: Aerial view of Ballona Wetlands Ecological Reserve. ....	47
Figure 5: Students viewing wetland wildlife .....	48
Figure 6: A) Ballona Reserve, 2015; B) Ballona Harbor, 1902.....	68
Figure 7: Ballona Wetlands Ecological Reserve main entry .....	72
Figure 8: “Urban Wilderness” plaque at Kenneth Hahn State Recreation Area.....	76
Figure 9: Rendering of the One Big Park, Mia Lehrer + Associates .....	78
Figure 10: La Ballona – 1900 map & 2018 restoration plan .....	84
Figure 11: UCLA volunteers working to restore the Baldwin Hills Scenic Overlook.....	90
Figure 12: “Native, California Friendly, Or Invasive?” Sign at Stoneview Nature Center .....	93
Figure 13: Weed watch Pamphlet.....	97
Figure 14: Weed watch “Terrible 10” poster, Kenneth Hahn State Recreation Area .....	99
Figure 15: “Kill your lawn” comic book, by Baldwin Hills Greenhouse Program students. ....	108
Figure 16: Tour opening at Ballona Wetlands.....	114
Figure 17: “Wiyot’s Children,” Gabrieleno Indian Village of Sa-angna, Playa del Rey.....	114
Figures 18-19: Representational Tongva ki’iy (thatched hut) .....	119
Figures 20-21: Tongva Park landscaping & LMU Tongva Memorial.....	121
Figure 22: Science illustration activities at Kenneth Hahn during a spring school tour .....	126
Figure 23: iNaturalist app homepage and observation description.....	141
Figure 24: Students experimenting with soil drainage .....	151
Figures 25-27: Compass, Station guides, field notebook, binoculars, illustration.....	158
Figures 28-29: “Kill your Lawn” comic book; Leo Politi science art exhibit. ....	160
Figure 30: Composite of student activities .....	161
Figures 31-32: School Tour Station Map & Watershed model, Kenneth Hahn SRA.....	163
Figure 33: LAAS Summer Camp at Kenneth Hahn looking to ocean past over oil derricks .....	188
Figure 34: Excerpt, Sibley Guide to Birds.....	199
Figure 35: Elementary School Tour at Kenneth Hahn SRA.....	212
Figure 36: Docent interview responses on the intersections between race and nature tour responses .....	222
Figure 37: Logos for Outdoor Afro and Latino Outdoors .....	255
Figures 38-39: Then & now: Children playing in View Park, 1925; Leimert Park Runners Club, 2017 .....	264
Figure 40: Revitalization projects in and around Baldwin Hills.....	266
Figure 41: What was once a reservoir is now a sunken grassy plain with oak trees.....	270
Figures 42-43: The Baldwin Hills Reservoir and floodwaters after the dam collapse in 1963 .....	271
Figures 44-45: Stocker Trailhead Opening Ceremony .....	276
Figure 46: Diagram of fungal network, with highly connected ‘mother trees’.....	281
Figure 47: Intergenerational, interspecies situated rhizosphere network.....	292
Figure 48: Los Angeles Audubon Schoolshed map, by Stacey Vigallon. ....	300
Figure 49: Equality, Equity, Reality comparative chart .....	309
Figure 50: Cognitive maps .....	319

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## INTRODUCTION

*“I’ve lived in apartments all my life and if it wasn’t for the program I would probably still be a person who would never consider anything like this. But now I see lots of different birds, for the most part when I was little everything was a pigeon. It’s giving [kids] opportunity and genuinely letting them know, even in the city things are more expansive than you understand.”*

*- Brent, Dorsey High School Intern<sup>1</sup>*

### **A green Los Angeles?**

#### *Nature imaginings*

Nature in Los Angeles is difficult to define. In the same breath, we talk of the city as a concrete jungle, and as an impossible paradise where you can go skiing in the morning and get a tan on the beach in the same day. Growing up in this city, I subscribed to the ‘concrete jungle’ view and couldn’t wait to escape to the east coast for college. When I finally returned after a sojourn abroad, I saw the city in a new light. Watching the transformation of the Natural History Museum of Los Angeles into a highly interactive nature space, I began to wonder how and what LA kids today learned about the city’s nature spaces.

In an analysis of disjuncture in the global cultural economy, Arjun Appadurai (1990) warns that cultural diversity does not necessarily foster a culture of diversity. Indeed, the dominant response “attempts to hold the Eurocentric and establishment core of the curriculum in place, inoculating it by simply adding on selective, nonconflictual items from the culture and experiences of

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<sup>1</sup> To protect the identity of my interlocutors, all names of participants are pseudonyms, except for those who explicitly agreed to have their legal names cited in this work.

minority and subaltern groups” (McCarthy et al. 2005, 163). That is, an additive approach to integrating diverse cultures, views, and experiences into education is not good enough. Similarly, pedagogies that foreground one specific minority group to counter the pedagogical hegemony of the dominant group fall victim to the same mistake. Rather, educational organizations and institutions truly committed to diversity can and should “transform the way in which knowledge is sought and transmitted” (Appadurai 2005, 429). In this way, institutions like the Natural History Museum and the Los Angeles Audubon Society are slowly working towards a new way of learning and sharing environmental knowledge.

Studying environmental education necessitates recognizing Los Angeles as a post-metropolis marked by “the dialectics of de- and re-industrialization, the peripheralization of labor and the internationalization of capital, housing and homelessness, the environmental consequences of untrammelled development, and the discourse of growth” (Davis 2006, 84). Early development and rapid urbanization, as well as the end of the Western frontier, led to Americans increasingly defining the environment and nature as separate from culture, leading to what sociologist Dorceta Taylor described as the “white, bourgeois” conservation movement led by John Muir (quoted in Checker 2005, 18). As a result of these processes of development, environmentalists in the 1960s and 1970s saw Los Angeles as the worst example of the loss of urban nature, and successfully fought for coastal protection and clean air initiatives to try to remedy the situation (Gottlieb 2007). The 1980s and 1990s saw the growth of community groups working to improve the city’s environmental quality, though these were often divided along racial and class lines.

Guided by the nature education programs' own focus on "underserved" populations (i.e. low-income children of color), by attending to race and class I aim to analyze the social inequalities of the "divided city" (Low 1996) in the context of nature education. Los Angeles is a particularly rich site for the study of race/class inequalities given its history of economic growth driven by private capital, minority immigration for low-wage work, and the subsequent disproportionate distribution of wealth (Zavella 2001, Ong and Blumenberg 1996). As a profoundly diverse city of immigrants where the white minority holds most of the power and wealth,<sup>2</sup> Los Angeles has been described as a "fractured social mosaic" in which existed "multiple axes of differential power and status that produce and maintain socio-economic inequality" (Soja 2000, 265).

Within this fractured mosaic, public perceptions of culture as separate from nature persist. After all, in a highly urbanized city like Los Angeles, it is easy to assume nature is found *out there*, rather than right here. Geographers, anthropologists, and political ecologists have long challenged and critiqued this idea, discussing its culturally narrow perspective (Franklin 1995), the social inequalities it reproduces (Harvey 2004; Checker 2005; Moore et al. 2003), and the ways in which it masks the importance of a materialist human-nature relationship (Castree 1995, 2003). Some have offered relational and hybrid ontologies that merge human and non-human components as a counterpoint (Bakker 2010; Braun 2008; Cronon 1995b; Haraway 2006; Whatmore 2009). Others like Marxist scholar John Bellamy Foster suggest that rather than seeing science and materialism as the enemy of earlier romanticized views of nature, in fact "the

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<sup>2</sup> According to the American Community Survey of 2017, Los Angeles is 28% white, 9% Black, 11% Asian, 2% multi-racial, and 49% Hispanic (US Census Bureau 2017)

development of both materialism and science promoted – indeed – made possible – ecological ways of thinking (Foster 2000, 1). Accordingly, it can be argued that modern environmentalism and its attendant preoccupation with conservation and the preservation of biodiversity was built on this history.

These themes reverberate throughout the environmental movement and are the clarion call of the vast majority of environmental organizations. The Sierra Club, founded by naturalist John Muir, is a strong advocate for the protection of wild spaces including America's National Parks; a recent effort was focused on preserving the Arctic National Wildlife Refuge. Their 2018 website highlights an "Our Wild America" campaign "working to increase access to the outdoors; to protect our lands, water and wildlife; and to keep fossil fuels in the ground." Others like the Natural Resources Defense Council, the Environmental Defense Fund, and the Nature Conservation similarly work to safeguard wild spaces as a key method in the fight against climate change. Though they often unwittingly reinforce separation of nature from culture, I want to recognize the important work such organizations are doing in sustaining nature.

Similarly, growing recognition of the anthropogenic impacts of human activities on nature (and its disruption of nature-culture binaries) coincides with powerful analyses of what writer Richard Louv has called the "nature-deficit disorder." His 2005 manifesto, *Last Child in the Woods* argued the existence of (and potential remedies for) "the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" (36). A recent three-year study profiled in the BBC in 2013 found that only 21% of children ages 8-12 are "connected to nature" (McGrath, 2013). Consequently, researchers

in major scientific journals have confirmed these affirmations with studies demonstrating the positive influence of outdoor activity for children. Mental health disturbances like anxiety and depression were statistically lessened in those who spent time outdoors (Kuo and Taylor 2004). A study cited in the news magazine *The Week* showed that a walk in nature significantly decreased how often the walkers ruminated, or engaged in “inward, self-referential thinking, which is tied to depression and anxiety” (Bratman et al. 2015). In healthcare, Kaiser Permanente is a leader in “park as prevention” efforts. Urban nature expert Louise Chawla has shown how nature exposure and activity improves physical health, mental agility and creativity, and a closeness to nature, potentially forming a founding for lasting environmental stewardship values (Chawla 2015).

The tenuous nature of humans advocating for a deeper relationship to nature through its very dissociation from daily human life is profoundly complex. In this project I therefore attempt to reinsert a certain materiality to human-nature relations, addressing critiques that “environmental social theory has not thus far been sufficiently materialist, historical, or dialectical in orientation to reconstruct social theory along more ecologically conscious, realist lines” (Foster 2000, 17).<sup>3</sup> Without a deeper dialectical and nuanced understanding of place-based nature-culture realities and experiences, then discussion of anthropogenic environments, nature-deficit disorders, and wilderness preservation only serve to reproduce old oppositional dualisms. When conducted

---

<sup>3</sup> Importantly, by attending to the materiality and practices of nature experience, I hope to contribute to conversations that “transcend the idealism, spiritualism, and dualism of much of contemporary Green thought, by recovering the deeper critique of the [material and productive] alienation of humanity from nature” (Foster 2000, 19-20).

from a situated, informed space, place-based experiential outdoor environmental education has the potential to reframe and blur humans' relationship to land and nature, while also forefronting the histories of subjugation, erasure, and exploitation of the land, its previous inhabitants, and the participating community.<sup>4</sup>

### ***Urban greening***

In the urban setting, the beneficial greening of the Anthropocene is a reaction to centuries of politics around American cities as “unnatural” sites in need of reform. In Los Angeles, the nature-culture divide took the form of a dense, park-poor urban core in opposition to the green lawns of the suburbs (Sudjic, 1992). As such, mainstream urban environmentalism as a predominantly white, middle-class movement of homeowners (Finney 2014) concerned itself primarily with “the remaining large open spaces and undeveloped coastal areas still accessible within the urban boundaries of Los Angeles” (Gottlieb 2007, 33). In the 1970s-era heyday of American environmentalism, and still today, ocean pollution and wilderness preservation in the name of biodiversity and recreational spaces were key initiatives. Organizations like Heal the Bay and Santa Monica Baykeeper, as well as legislation such as the Clean Water Act and Clean Air Act are proof of this interest.

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<sup>4</sup> For example, the Black/Land Project, while not environmental education per se, works to re-center Black Americans' relationship to land that has been masked and/or denigrated over the centuries by hegemonic white narratives of what is a valued and appropriate use-relationship to the land.

Shortly thereafter, in the 1980s environmental justice groups in low-income communities of color in the urban core cropped up to fight racialized environmental injustices focusing on pollution and food justice. For example, anthropologist Melissa Checker's book about environmental justice in a southern American town explores how "environmental racism affects real people, every day, on the ground, and how those people struggle against this situation, in part by calling attention to the links between environmental pollution and race" (2005, 13; see also Checker 2011). While class is a factor, race is equally if not more impactful; Checker cites evidence that even middle-class Black and Latinx communities have higher rates of environmental contamination than low-income whites.<sup>5</sup>

In his historical analysis of nature and community in Los Angeles, Robert Gottlieb examines the space where nature preservation of mainstream environmental groups and quality of life interests of community-based environmental justice groups merge. In the 1990s, both groups seemed to come together, for a time, around the importance of green space for health; it was a win-win for biodiversity conservation and for creating healthy communities. Green LA, the Working Group for a Just Sustainable Future supported by former Los Angeles Mayor Antonio Villaraigosa, is one such example. Their principles include social equity or "the elimination of disparity and promotion of full social, economic, and geographic equality as intrinsic to environmental

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<sup>5</sup> In this text I use the term Black rather than African-American, spelled with a capital B. As Kimberlé Crenshaw argues, "Blacks, like Asians, Latinos, and other 'minorities,' constitute a specific cultural group and, as such, require denotation as a proper noun... Although "white" and "Black" have been defined oppositionally, they are not functional opposites. 'White' has incorporated Black subordination; 'Black' is not based on domination... 'Black' is naming that is part of counterhegemonic practice" (Harris 1993,1710n3). Further the Black community of which I am part refers to itself as Black, tending to African-American when speaking to those outside the community. Additionally, throughout I use Latinx (instead of Latino/a) intentionally as a gender neutral descriptor.

sustainability” as well as valuing natural systems by measuring “the vital contribution to human health provided by nature and ecosystem functions so they can be maintained and enhanced through policy” (Green LA 2007).

In this way, organizations like Tree People work to plant trees to fight air pollution and create a more pleasing urban landscape, a key feature former Mayor Villaraigosa’s “one million trees” initiative.<sup>6</sup> Similarly, Northeast Trees in East L.A. focused heavily on school gardens and greening in traditionally underserved east Los Angeles neighborhoods. Gardens as community places (Lawson 2005; Linn 1999) have for the last few decades been integrated into movements for urban green renewal, in some ways demonstrating the intersectionality between mainstream environmental desires for green space and environmental justice imperatives for food equality.<sup>7</sup> This is especially true of ethnic urban gardens (Hondagneu-Sotelo 2014), such as those of Hmong, Puerto Ricans, and Mexicans who use gardens as place-making and community-building centers and sites to reconnect to land-use traditions.<sup>8</sup>

Urban parks also participate in this shift, and are central to the questions of this research project. Specifically, how do urban green spaces and the practices and knowledges that grow out of them

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<sup>6</sup> Though it was not achieved.

<sup>7</sup> However, it is important to note the collapse of places like the 7.5-acre South Central Farm, forced innovative users bend to the “constant production of urban space” (Hayden 1997).

<sup>8</sup> I am also interested in exploring how similar food communities of African-Americans, even in the urban setting, are under-acknowledged in theory and disappearing in practice, despite efforts like guerilla gardener Ron Finley and others to reinvigorate food gardens among low-income African-American communities as an act of resistance and desire for urban flourishing.



participate in contemporary urban greening movements of the Anthropocene? Large landscaped parks like those of Central Park in New York or Golden Gate Park in San Francisco were designed to provide a natural escape from the hardships of urban life for city residents (Gottlieb 2007). Mid-twentieth century parks focused on recreational use and a low-cost design of lawns and a sprinkling of trees (Cranz 1982). In the 1980s-1990s, the need for urban parks and attendant green space became a critical component of the environmental justice movement, disrupting histories of displacement and privilege that led to the formation of public parks designed for and accessible to the white middle-class majority (see also Davis 2006). Due to limited resources in low-income districts, and historical processes that situated low-income communities of color in park-poor areas, the communities that most need open space continue to have the fewest resources to create or maintain it (Loukaitou-Sideris & Stieglitz 2002).

Much of the wilderness conservation and green space development efforts center around the practice of environmentalism such as beach cleanups, community gardening, and native habitat restoration. Organizations like the Sierra Club<sup>9</sup> and Outward Bound offer parallel efforts to expose people to nature take the form of wilderness excursions that aim to develop hard skills like wilderness survival, as well as soft skills like self-confidence and team building. Such programs play an important role in filling hegemonic modern American society's occupational and educational gaps around environmental practice.<sup>10</sup> However they also reflect a white

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<sup>9</sup> Founded by John Muir, widely considered the father of wilderness preservation, it is no surprise that the Sierra Club continues to emphasize the value of wilderness, though they have significantly expanded their environmental justice efforts.

<sup>10</sup> These gaps around environmental practice can be attributed in great part to industrialization and capitalist development, and the consequent alienation of humans from nature (Foster 2000; Marx 1972).

Eurocentric set of environmental ideologies, amplified by settler colonialism, that privilege the preservation of wilderness and dominion-related stewardship values. The inclusion of normative scientific inquiry of ecology as content and methodology is framed as a justifying force, enabling continued funding and school support of programs.

Despite their importance in the distribution and acquisition of environmental values and practices, informal environmental *education* programs suffer from a lack of scholarship examining how it too presents a universalizing “regime of truth” that restricts the kinds of nature knowledges and experiences considered valid (Maher 2002). These regimes have their own specificities in the urban setting, where urban nature education is described as having “the same objectives as traditional environmental education: to encourage awareness, knowledge, attitude formation, skill development, and participation in solving environmental problems,” while also being “unique because it happens in urban areas, with urban people, and deals with urban environmental systems and issues.” (Frank et al. 1994). Again, I do not discount the importance of exposing all communities to nature knowledge and experience, both for imperatives of environmental equity, as well as for the opportunities that exposure to a broader range of lived experiences can bring. However, particularly when targeting communities of color, it is important to uncover the cultural underpinnings and embedded narratives of programs, situating these narratives in a broader political, cultural, and economic context that continues to subjugate the lived realities of the groups they target. In doing so, I demonstrate the deficiencies but also possibilities for a socially just and materially embedded form of urban environmental education.

## Analytical Lenses

### *Cultural production of nature-cultures*

The anthropological literature on the deconstruction of nature-culture dualisms is extensive. Historian Raymond Williams' foundational work *The Country and the City* (1975) considers the deep-seated relationship between city and country. More recently, other scholars describe the ways in which "'nature' is a human idea," (Cronon 1995a, 20) actively produced by people both discursively and in practice (see also Braun 2002; Raffles 2002). Still others emphasize the "co-production of socio-nature" as an approach that gives generative capacities to both the natural and social worlds in their mutual constitution (Bakker and Bridge 2006; Braun 2004). Still, even the theory of co-production can also be argued to be insufficient by remaining stuck in the nature-culture dichotomies of the "modern Constitution" (Latour [1993] 2012, cited in Braun 2004).

Donna Haraway has troubled this separation with her feminist discussion of gendered and technological hybridities, arguing a move past the "tradition of racist, male-dominant capitalism; the tradition of progress; the tradition of the appropriation of nature as resource for the productions of culture" (1991, 150). For her, the cyborg ontology creates a space where "nature and culture are reworked; the one can no longer be the resource for appropriation or incorporation by the other" (1991, 151). I apply her feminist framework of hybridity to counteract the narrow epistemologies of contemporary environmental education, recognizing the nature category as a social product (Haraway 2008) and advocating for a plural approach to the

perception, definition, and experience of nature.<sup>11</sup> Finally, sociocultural anthropologist Anna Tsing's (2005) discussion of the gaps and global-local frictions in the Indonesian rainforest offers further tools with which to explore the tensions between expectation, representation, and practice of the nature experience for people of color.

### *Urban anthropology*

The environmental education programs I studied are situated within urban Los Angeles, focusing their educational and conservation efforts within the city as well. Lefebvre's (2003) classic work "The Urban Revolution," usefully discusses the ways in which the "urban society" is a unique social product that can trace the origins of its contemporary form to processes of industrialization. Relatedly, urban studies often focus on the complex social problems of city life, with a particular emphasis on issues of ethnic segregation, power, and quality of life (Caldeira 1999; Davis 2006[1990]; Graham and Marvin 2002; Gregory 1999; Hayden 1997; Kun and Pulido 2013; Soja 2000). My study is situated among non-profit education programs in Los Angeles, termed a "megacity" and "post-metropolis" with a long history of paving over, literally, its nature-spaces (Soja 2000). Like many cities, this history makes contemporary Los Angeles seem deeply disconnected from nature.

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<sup>11</sup> Recognizing how constructs like nature-culture dualisms or mainstream environmentalism are situated social products creates space for the idea that those frameworks are not the only way to approach the environment. Further, this reframing shows educators that privileging one framework subjugates others, which in turn tend to be engaged in by those communities who already have and continue to suffer marginalization and oppression.

Focusing on Chicago, historian William Cronon expands on Williams (1975) to deconstruct the idea of nature as separate from the city, demonstrating how cities like Chicago are *incorrectly* seen to represent “all that was most *unnatural* about human life... a cancer on an otherwise beautiful landscape” (1992, 7). Drawing on this line of inquiry, I emphasize how the built environment and human communities in Los Angeles, despite the history of rapid development and urban sprawl, are in fact deeply intertwined with nature. The city being a “site of everyday practice” (Low 1999), I look both to the practices and the narratives within urban environmental education to elucidate the ways in which the history of development has impacted the possibilities of nature involvement, but also point to the ways people, through their experience with nature or lack thereof, either remain restricted by or move beyond those possibilities.

### ***Urban political ecology & environmental justice***

Weaving together scholarship on nature-culture dualism and urban anthropology, I also draw heavily on political ecology as the overarching framework to help illuminate questions of nature, race, power, and inequality. Swyngedouw & Heynen apply the lens of political ecology to the urban setting to examine the “power-laden socioecological relations that shape the formation of urban environments” (2003, 898). While drawing primarily on a Marxist critique of capitalism and the commodification of nature that connects the local to the global, this approach helps integrate the ways in which historical-geographic ongoing processes impact the urbanization of nature (Heynen, Perkins, and Roy 2006; Swyngedouw 2006). Political ecology also draws attention to the multiplicity of urban ecologies that have been constructed by those in power for the benefit of the white elite, and to the detriment of the minority poor. Together, these frameworks assist in illuminating the interplay of institutionalized racism and emplaced

community identity and praxis in the construction of urban nature spaces, meanings, and experiences.

Digging in to justice, power, and race, political ecologists and environmental justice scholars alike seek to give voice to subaltern groups victimized by endemic social and structural inequalities (Agyeman 2005; Brodtkin 2007, 2009; Bullard [1990] 2018; Camacho 1998; Checker 2005; Cole and Foster 2001; Pulido 2000; Sze 2007; Walker 2005). In doing so, they also intentionally enable a re-examination of what “environment” means, and how those meanings differ for different groups, as influenced by broader structures of power and inequality. Scholars examine such topics as community-based food justice movements (e.g. “guerilla gardener” Ron Finley, the South LA Food Co-op), the inequitable distribution of park spaces (Byrne and Wolch 2009; Wolch et al. 2005), and “threats to human well-being” in terms of pollution and toxic hazards (Pulido 1996). Activism, whether community-based or tied to regional or national environmental initiatives, and how it is enacted runs throughout these works. Indeed, in his discussion of environmental justice, Walker aptly argues that “if environmentalism really is a city-based battle cry against the ravages of capital, then it is only logical that it addresses the most heavily impacted urban spaces” (Walker 2009, 229). While environmental justice has been a powerful voice of resistance against environmental inequity, it remains (importantly) focused on narratives of degradation and detriment. With this project I take a parallel path by focusing instead on the generative potential of community-based and place-specific environmental education efforts that target the same communities affected by environmental injustice.

### ***Knowledge production***

Foucault argued that one function of knowledge is “as a form of power and disseminates the effects of power” (Foucault 1980:69). Science and Technology Studies (STS) scholars directly take up this idea to examine how exactly knowledge (especially scientific expertise) is produced, distributed, and circulated (Goldman et al. 2011; Haraway 1991; Jasanoff 2004; Latour [1993] 2012). Coming out of a feminist tradition, Haraway developed the “situated knowledges” concept to offer a broader analytical framework, arguing that STS insufficiently addresses “practices of domination and the unequal parts of privilege and oppression that make up all positions” involved in knowledge production (Haraway 1988, 579). Foucault usefully illustrates how “science” itself is in fact a human construct resulting from the “disciplinarization of knowledges, and its polymorphous singularity” (1976, 182).

Additionally, knowledge and its transmission plays a role in constructing the citizen-subject. The “judicial power within the school” that Foucault articulates, though focused on the formal school setting and disciplining the body, can be extrapolated to the informal setting and disciplining of the mind to examine how education produces subjects (Foucault in Dreyfus & Rabinow 1982, 208). Too often environmental educators want to take city-dwellers out to “real” nature to go camping and hiking, without also recognizing the very real ways in which they engage in real nature close to home, and despite the fact that research shows people develop place attachment and nature sensitivity to their local environment (Nabhan & Trimble 1994; Shumaker & Taylor 1983). This leaves little room for other forms of knowledge, experience, or cultural difference across groups making the nature learning space narrow and potentially irrelevant to the participant.

These analytical themes, described by Goldman and Turner as the “politics of knowledge” are therefore applicable to the context of science-based environmental education. Environmental world views are influenced by “culturally embedded environmental knowledge” (Kopnina 2012, xiv; Kopnina 2013). Some analytical contributions have included the role of family in environmental learning (Zarger 2002), emotion as a motivator (Anderson 2010), and intergenerational learning (Barnhardt 2014; Nabhan and Rosenberg 1997). All uncover the myriad ways in which individuals and groups learn about nature, and the possibility and value of incorporating these frameworks into generic environmental education programs. To achieve a truly just and epistemologically plural environmental knowledge, I follow feminist scholar Donna Haraway in “arguing for politics and epistemologies of location, positioning, and situating, where partiality and not universality is the condition of being heard to make rational knowledge claims” (1988, 589). Understanding the creation and possession of knowledge as a tool for power and for cultivating specific types of subjects enables a deconstructivist critique of nature learning and its role in perpetuating these knowledge/subject/power dynamics.

The environmental politics around the content and form of environmental learning is often contested, and in that charged context science is seen as a safe, objective baseline for much of environmental learning and involvement. I therefore apply Bang and Medin’s argument that epistemological orientations “influence the scope of activities considered in science education and the form that science practices take” in order to critically examine normative ecological science curricula within environmental education programs (2015, 29). Scientific ecological inquiry is a cultural phenomenon; if we reframe science to simply signify a methodology that privileges “a rational perceiving of reality” (Ogawa 1995, 588), we can shift environmental



education towards a more inclusive and situated narrative, whether in formal or informal school settings. Escobar's poststructuralist political ecology approach is useful here, incorporating a consideration of discourse and knowledge, and arguing for "new narratives of life and culture" and new epistemologies that "attempt to step outside the traditional space of science by taking seriously the continuity between cognizant self and world" (Escobar 1996, 341). It is in this intersectional space of political ecology and knowledge production that I consider the potentiality of incorporating plural epistemologies into science-based nature education.<sup>12</sup>

### *Emplaced historicity*

In the form and content of urban environmental education in Los Angeles, it is important to recognize that "settler lifeways [persist as] the normative benchmark" throughout society from politics to education (Bang and Marin 2015, 532).<sup>13</sup> Settler colonialism has been defined by Patrick Wolfe as a persistent structure that "destroys to replace," erasing indigenous peoples from the land in order to acquire it for, paradoxically, either development or wilderness preservation. Its emphasis on territoriality directly affects how wilderness and indigeneity (both of Native people and native ecology) are used to cultivate a specific relationship to the natural landscape.

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<sup>12</sup> Throughout, I refer to normative scientific epistemologies that come out of white European tradition. Science as a tool for rationalizing the world is not in itself problematic. Rather, what is at issue is the way it is assumed to be a-cultural, universal, objective, how it has been deployed in dehumanizing and subjugating the "Other," and how its prioritization doesn't leave room for the integration of other methodologies of observing and relating to our environment.

<sup>13</sup> See my MA thesis where I show the reverberations of SC as they affect American wilderness ideologies. While the erasure of indigeneity is a central aspect of settler colonialism (one which I will address to some extent in a subsequent chapter), here I wish to draw attention to its relationship to the content and goals of outdoor science-based nature learning.

Importantly, thinking in such terms can “integrate indigenous and non-indigenous lives, while sustaining attention to power” (Cattelino 2011, 2). That is, settler colonialism as an ongoing project discursively and physically erases indigenous presence, and in the process creates spatial structures and wilderness values that reinforce white ownership of property, and the subjugation of other people of color (e.g. Black slaves, Mexican migrant farm workers) to enable that possession.

Themes of indigeneity and land are at the heart of settler colonial societies, infiltrating a wide range of social existence. In Los Angeles, the Tongva/Gabrieleno peoples indigenous to the region have been systematically erased from the history and current moment of the region. Too many people I have spoken with in casual conversation, even native Angelenos, had no idea Los Angeles was ever home to indigenous tribes, let alone that their members are still here.

Homeland to the Tongva and Tataviam people, the basin of Los Angeles is bounded by the Pacific Ocean to the west, the Santa Monica Mountains, Hollywood Hills, and the San Fernando Valley to the north, the San Gabriel mountains to the far east, and urban/suburban sprawl to the south. Even if the vast majority of students are not native, they live on Native land, a life enabled in part by the forced removal of its first people. This history in itself is worth greater recognition. Educators and students alike must also become aware of how much of the American story and identity, and thus their story, is predicated on indigenous removal and related wilderness and “real nature” mythologies. Part of this project then, as it is situated in a settler colonial society, works to recognize the indigenous experience and the implications of its erasure as expressed in the world of environmental education.

### *Racialization of nature*

The final framework I am working involves a critical examination of how race and nature intersect. Los Angeles is a particularly rich site for the study of race/class inequalities given its history of economic growth driven by private capital, minority immigration for low-wage work, and the subsequent disproportionate distribution of wealth (Ong and Blumenberg 1996; Zavella 2001). If race and class are important (though not the sole) factors in determining one's "social location" (Braun 2003), it follows that they may inform or are formed by other socially meaningful areas as well, such as urban nature beliefs. In this dynamic city of immigrants and migrants, understanding the concept and experience of race as a relational and shifting process is critical (Omi and Winant 2009). Such an approach implies that race is not a static category but rather something historically and continually (re)constructed through the everyday interactions and broader political frameworks of daily life, including urban nature.

Laura Pulido characterizes "mainstream environmentalism" as the domain of the privileged few more concerned with nature "out there," versus "subaltern" concerns whose "point of entry into environmental concerns is usually framed by inequality and often related to access, production, and distribution issues in intimate ways" (1996, 29). Braun discusses such questions through an incisive analysis of the representation of Blacks in outdoor activity magazines (2003). Finney (2014) on the other hand explores these questions by considering how the relationship between Blacks and the outdoors has been constrained by public discourse and media representations into one of distance, and instead works to demonstrate the rich history of Blacks in nature.

Anthropologist Dana Powell, in her work exploring the political ecology of energy infrastructures and indigenous sovereignty among the Diné (Navajo), similarly explores the interplay of race with nature, illustrating the many alternative ways people of color exist in and with their environments to achieve particular ends (2015). These works inspire my own research, exploring how the political ecology of urban nature is influenced by pre-existing histories and structures like settler colonialism and environmental racism. Attention to the interplay of race and nature can help environmental educations that target subjugated communities become truly transformative, rather than reproducing the same structures and narratives that contribute to their subjugation.

However, the continued privileged use of these specific narratives of nature knowledge and practices of nature experience point to the ways such programs are often unknowingly complicit in the maintenance of white supremacy in America.<sup>14</sup> Often, this manifests in white privilege, or the advantages of whites over people of color, which frequently go unaddressed due to social discomforts anthropologist Karen Brodtkin calls “race-avoidance” (2009, 13). Despite what was effectively the desegregation of conservation organizations in the 1960s and 1970s, the environmental movement is still primarily white and middle-class. Indeed, some have gone so far as to call American environmentalism the “secular religion of the white middle class” (Thiele 1999). Whiteness then, in environmentalism as elsewhere, is a valuable asset according to critical

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<sup>14</sup> Legal scholar Frances Lee Ansley defines white supremacy as “a political, economic, and cultural system in which whites overwhelmingly control power and material resources, conscious and unconscious ideas of white superiority and entitlement are widespread, and relations of white dominance and non-white subordination are daily reenacted across a broad array of institutions and social settings (1989, 1024n129 in Harris 1993).

race theorist Cheryl Harris (1993). In 1989, less than 17% of the staff in the 10 largest environmental organizations were minorities (Minority Opportunity Study 1989). As the lone person of color on the Board of the Los Angeles Audubon Society, I represent the desire of LAAS and many other environmental organizations to diversify their leadership and membership. However, as founder of Outdoor Afro Rue Mapp critiques, “you can certainly brown-wash your environmental messaging, but if your executives, leadership, the C-suite, and board don’t reflect the populations that you say you prioritize in your organization, then I think it’s inauthentic at a minimum” (Mapp 2014, 82).

It is true that minorities, who are overrepresented in lower income, less educated populations, tend to be more concerned with healthy food, decent housing, and environmental pollution in their communities than with wilderness preservation. As Gruenewald discovered, when broaching the topic of environmentalism with his students, as one African-American student remarked, “its hard to be concerned about ‘the environment’, he said, ‘when someone’s foot is on your neck’” (Gruenewald 2014). Environmental justice initiatives and scholarship have been an important space to critically address and advocate for the different yet pressing environmental concerns around such issues as equitable access to green space, food deserts, and the disproportionate impacts of the “poisonous fruits of industrial production” (Austin 1991, 69). What value then is there in mainstream environmentalism for these communities? Indeed, despite the importance of environmental justice and community-based practices, scholarship of contemporary environmental awareness and education in minority, especially middle-class, communities is scant. Environmental science knowledge and stewardship values are arguable

important for the planet's sustainability; these topics must therefore become part of a more plural and situated environmental education approach.

## **Environmental Education in Los Angeles**

### ***L.A. nature & culture***

When people think of L.A., with its palm trees, mountains, and cultural landmarks like the Hollywood sign, they are really thinking of Los Angeles County, comprised of 88 smaller cities in addition to numerous unincorporated county areas. At the time of this research in 2014, L.A. County was home to about 10 million people (US Census Bureau 2015b). Nearly half of L.A. identifies as Latinx, in addition to about 8% of the population identifying as Black, 14.6% as Asian, and 28% as white. Importantly, while the statistical percentage of American Indians in Los Angeles is low (due to settler colonial practices of assimilation and removal), according to a report put out by the National Urban Indian Coalition, as of the 2010 Census there are still 1.6 million American Indians or mixed-race American Indians living in Los Angeles (Bang et al. 2015). Still, the significance of their historical impact on the region (and continued erasure) necessitates wider awareness.

Nature in L.A. is dramatic. From earthquakes to wildfires to landslides, it's a wonder anyone lives in Los Angeles. And still, somehow, early city developers decided to build a metropolis in this landscape. As Mike Davis puts it, "market-driven urbanization has transgressed environmental common sense" (1998, 9). Despite urban sprawl, Los Angeles also holds the unique attribute of having "the longest wild edge, abruptly juxtaposing tract houses and wildlife

habitat, of any major non-tropical city” (Davis 1998, 202). This wild edge terrain is hilly and rugged, populated by mountain lions, coyotes, rabbits, black bears, and hawks. It is for all intents and purposes a “true” wilderness. Despite the seemingly precise boundaries along this wilderness, and around urban recreation areas and ecological reserves, it is evident that the wild and the urban intimately interpenetrate one another. As a biodiversity hotspot, and one of only two in the United States, Los Angeles is well-situated to be a prime site for exploring the definition and experience of nature in the urban setting.

LA County conducted a Parks Needs Assessment in 2016, seeking to gauge the role of parks for local residents. Flyers for the Parks Needs Assessment of 2016 asked “What will make your family and your neighborhood healthy, happy and out getting physical exercise?” Fallen Fruit, an arts & environment non-profit that frequently partners with the County on park-related events, asks city-dwellers to reclaim and change their neighborhoods and “transform the city” through a sustainability approach - “Urban neighborhoods could be transformed with this symbolic generous resource. Fruit trees connect us to the environment, seasonal changes, our rural roots and culture. Fruit trees could bridge ‘disconnected communities,’ bringing fresh fruit to food desert neighborhoods, while helping remove toxins from the soil” (FallenFruit 2016). However, this only tells part of the story, as Los Angeles is peppered with trees (Tree People’s sole mission is to plant trees to increase the urban forest), community gardens, and backyard lawns.

In some ways I was fortunate that my research coincided with a sharp uptick in environmental conversation and awareness. It can be argued that decades of intense urbanization have reached a tipping point; the urban population jumped from 746 million in 1950 to 3.9 billion in 2014

during my research year (United Nations 2015). These numbers coincided with the growing recognition of the “Anthropocene” as a distinct geological epoch marked by the significant detrimental impact of human on global systems; an eponymous scientific journal was launched in 2013. A key component of the Anthropocene has been the recognition of climate change, whose existence long demonstrated by the scientific community is increasingly felt over the last 5-10 years by ordinary people; the 5 warmest years in the global record have all occurred in the last decade (Climate Central 2018). Accordingly, urban centers have turned their attention to mitigating climate change and boosting resilience and sustainability through municipal efforts such as the water-saving and carbon emission reduction efforts currently being implemented in Los Angeles.<sup>15</sup>

Part of the difficulty in defining urban nature spaces (and thus how to use them) has to do with the way urban nature is characterized. Historian Robert Gottlieb writes that urban natures are valued as “places or lands that are set aside from the rest of urbanized space, whether workplaces, freeways, parking lots, houses, schools, or flood-control channels” (2007, 54). In this way environmental justice and social justice activists clash over the best use of these lands. Following Bruno Latour, one way to overcome this divide is to create nature-culture assemblages that weave these seemingly disparate social worlds into a continuous fabric. The Natural History Museum of Los Angeles participates in this urban naturalism through its citizen science

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<sup>15</sup> Importantly, the onus of “saving the environment” seems to fall primarily on individuals admonished to take shorter showers, be better at recycling, carpool or bike to work, rather than on the primary consumers and polluters – big agriculture and the oil industry. The political economy of urban sustainability then is more complex than publicly presented.



programs, encouraging citizens to “Explore L.A.’s nature by doing what you love!” and choosing to participate in 8 sponsored projects from recording snails to spiders to squirrels (NHMLA 2017). In a member newsletter, the museum President and Director Jane Pisano emphasized that “we teach people of all ages and backgrounds how to go out into the city to see L.A. Nature with new eyes and if they want to, use their ‘nature eyes’ to help our scientists (Pisano 2015). The results of these observations are then added to the Museum Nature Lab’s LA. Nature Map.

The Natural History Museum of Los Angeles played a central role in the development of my analysis, and in how I personally view nature in the urban setting. The Nature Lab, which opened in 2013 (the same year I began my fieldwork), bridges the Museum’s Nature Garden with the rest of the museum collections, framing its approach as helping the general public to “see nature through new eyes” (NHMLA 2013). Museum President and Director Jane Pisano remarked that “we will become, for the first time, a museum of both natural history and living nature” (NHM Next 2013). The museum, in another important turn recently (summer 2018) re-opened and enriched their “Becoming L.A.” permanent exhibit, tracing a centuries-long narrative of cultural and biological diversity.

In 2016, the museum opened the Urban Nature Research Center, which is designed to help “spotlight ways to boost and sustain that biodiversity, and ultimately make L.A. a hospitable place for wildlife — and, by extension, humans — to thrive” (NHMLA 2018). In the Nature Gardens you can “meet a live animal” or “take a nature walk” (NHMLA 2017). For four weeks every summer it hosts “Summer Nights in the Garden,” with food trucks, DJ’s, and nature-related activities. The L.A. Urban nature fest takes place every June, and is described as a “two-

day celebration of Nature in the City!”. The twitter and Instagram handle @natureinla shows off photos by Angelenos of L.A.’s wildlife. Seeing and gaining intimacy with nature through science learning is an increasingly important and positive way for city-dwellers to connect with nature.

### ***Origins in American environmentalism***

To understand urban nature and associated environmental education movements in the US, it is important to trace the history of its origins within the environmental movement. What we now consider American environmentalism (namely, a concern with environmental literacy and preservation) began with transcendentalist commentary and advocacy for resource conservation and habitat preservation from the likes of Emerson (1836), Thoreau (1854), and Marsh (1864) (Gottlieb 1995; Stegner 1990). These and later authors and naturalists including John Muir paved the way for three predecessor disciplines to EE, identified by Disinger (1985) as nature study, conservation education, and outdoor education. The echoes of all three can be seen in modern environmental education principles and practices.<sup>16</sup>

Importantly, these movements were stamped with the “middle class and the liberal democratic tradition that dominates Western capitalist societies,” and as such did little to challenge or expand on the status quo (Stevenson 2007, 140). The environmental movement in the Western global North was, and is still widely considered to be, a “revolt of the *élite*” (Wheeler 1975:14) that often didn’t take into account the problems and concerns important to the urban (primarily

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<sup>16</sup> For the purposes of this project however, I will focus primarily on nature study and its continued role in informing outdoor environmental education.

minority) poor.<sup>17</sup> The 1960s and 1970s in the United States were marked by nascent environmental awakenings, as well as growing political activism such as the Civil Rights Movement and Vietnam War protests.<sup>18</sup> Coming on the heels of Rachel Carson's *Silent Spring* and Steward Udall's *The Quiet Crisis*, this climate led to a surge in environmental legislation at the national level. The Wilderness Act of 1964, Species Conservation Act of 1966, and the Clean Air Act of 1965, propelled in great part by "national concerns over what postwar affluence was pumping into the environment," showed growing interest for environmental issues at the national level (Carter & Simmons, 2010, 7). The National Environmental Policy Act of 1970, which requires the federal government to "use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony," was part of this moment.<sup>19</sup>

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<sup>17</sup> See though significant environmental justice scholarship and activism as a counterpoint

<sup>18</sup> "Back-to-the-landers" participate in an ongoing movement to leave the complexities and consumerism of "modern" life behind, in order to live more simply, through a productive relationship with nature in the country, preferably on their own property. Most though, continue to have city jobs and simply fulfill these desires on a more rural homestead during their free time (Jacob 2010).

<sup>19</sup> The Act in particular requires the production of Environmental Impact Statements (EIS) and Environmental Impact Reports (EIR) for any federal action significantly impacting the environment. In chapter 4, I will discuss one such document recently released for the Ballona Wetlands, and the subject of extensive controversy over the definition of conservation and restoration, particularly in the urban setting. The administrative arm of NEPA, the Environmental Protection Agency also founded in 1970 is responsible for creating an environment where jobs flourish. Under the Trump administration, this has taken the form of supporting the coal industry, whereas under President Obama, the focus was the polar opposite, limiting energy produced by fossil fuels and coal, redirecting towards green jobs primarily in solar and wind energy. However, whether the 5 million green jobs Obama promised to create was achieved is hard to say, as the definition of what counts as a green job is vague.



Figure 1: Keep America Beautiful, Ad Council, 1971<sup>20</sup>

The first Earth Day in April of 1970 marked the shift of environmental concerns to the mainstream. Stewardship narratives gained importance in cultivating an ethos of human responsibility for environmental well-being and sustainability. Yet, the embedded persistence of human-nature dualities and the romanticization of a historicized indigenous way of life risks continuing the domination of nature discourse so common in objective inquiry-based thought, and downplays other social and environmental meanings that do not fit into this dualistic framework. I therefore show how urban nature education is a surprisingly complex and powerful space in which to examine the political ecology of environmental identities tied to race and class, and how these influence environmental knowledge production and urban sense of place. This dissertation interrogates the nexus of lived realities in order to diversify environmental education

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<sup>20</sup> At the same time, Native Americans were recentered as emblematic of an idyllic and romanticized way to live in harmony with nature. Iron Eyes Cody, an Italian-American actor who made a living playing Indians on TV, embodied this moment in a television and later print ad portraying an Indian in traditional generic Plains Indian attire silently crying over the pollution he witnesses in nature.

and destabilize universalizing notions of what constitutes valid nature knowledge and experience. Equally important, it explores the ways in which nature access and cultural representation are confronted and sometimes resisted within environmental education programs that target low-income minority communities.

### ***Evolution of environmental education***

Contemporary environmental education grew out of early 20th century nature study, which sought to “develop an understanding and appreciation of the natural environment through first-hand observations” (Stevenson 2007, 140). Nature study as a field targeted the integration of nature and outdoor study in primary schools, beginning with the publication of Wilbur Jackman’s Nature Study for the Common Schools in 1891. Its novelty was to teach science through the use of tangible objects, rather than through books; coined by naturalist Louis Agassiz, the movement’s mantra was “study nature; not books” (from Kohlstedt 2005, 2010). Mid twentieth-century environmental education continued with these goals, with an added focus on natural resource conservation and citizenship practices (Stapp 1974). The twin goals are to cultivate a critical understanding of the ecological processes of nature and how they have been impacted by human activity, as well as develop an underlying moral code that will lead individuals toward civic action in support of environmental restoration and conservation. One cannot exist without the other.

As the predecessor for contemporary environmental education, the fundamentals of nature study continue to be closely adhered to by non-profit organizations that believe a scientific study of local nature can foster long-term affection for nature and a stewardship ethic. Armitage argues

that nature study pedagogy emphasized the value of knowledge acquired via “the nature encountered in students’ day-to-day lives” (2009, 9). Educator John Dewey integrated the methods of nature study (scientific study of tangible objects) into the Progressivist education movement to admonish “no number of object-lessons... can afford even the shadow of a substitute for acquaintance with the plants and animals of the farm and garden acquired through actual living among them and caring for them” (Dewey [1899] 2013, 8). He goes on to argue that the scientific method is “the only method of thinking that has proved fruitful in any subject – that is what we mean when we call it scientific” (Dewey 1910, 127). Though many educators swear by Dewey’s approach, other scholars suggest that progressive education theory might be a universalizing “regime of truth” that allows for educational inequalities (due to a lack of deeper inclusivity) to persist (Maher 2001).

This history led to the practice of contemporary environmental education, defined by Walter Bogan Jr. as a blend of process and theory, as well as content and purpose. He argued that the goal was environmental literacy “to help us learn how to proceed as a society toward a condition of ‘productive harmony’ with our environment, where destructive change is minimized and healthy change can proceed” (1973:3). The Belgrade Charter – A Global Framework for Environmental Education – of 1975 calls for the development of “a new global ethic” (UNESCO-UNEP 1976). With the rise of sustainable development, education was again called to the fore as a critical asset for “promoting sustainable development and improving the capacity of the people to address environment and development issues” (UN 1997). This ties environmental education back in to the greening and sustainability narratives through modern

environmentalisms, seeking to boost biodiversity resilience in the face of anthropogenic climate change.

Preliminary legislation in the 1970s acted on these ideas in relation to public schooling. The National Science Teachers Association conducted a study showing the lack of EE programs in schools, and President Nixon recommended the development of “environmental literacy” throughout the educational process (Nixon 1970, vii). This led to the short-lived 1970 Environmental Education Act, which was resuscitated in 1990 by President George Bush Sr, until its expiration in 1996. The Act mandated that the EPA make environmental education a key component; today the EPA’s Environmental Education branch makes about \$3 million per year available to “locally-focused environmental education.” Those programs supporting environmental education of biodiversity, general environmental literacy, and water regularly received 4 times more grants than other topics like air/climate and human health, and nearly 60 times more than grants regarding state/tribal/local partnerships (EPA 2018). In Los Angeles, a highly urbanized mega-city experiencing critical sustainability issues (e.g. the 5-year drought, climate change, etc.), environmental education can become a key tool in boosting urban resilience and sustainability.

Yet, despite some inroads made into the value of nature knowledge experience for mental and physical health (Louv 2005) or of the value of place-based education (Smith and Sobel 2014), environmental education in the US remains limited to environmental science knowledge and experience. Recognizing and focusing on the attendant limitations of such in speaking to a diverse population can help deconstruct and neutralize the monolithic, universalizing narratives

of its content and execution. Following indigenous scholar Kim TallBear (2014), recognizing inequities both masked and explicit in the environmental education field can open it up to more diverse experiences and consequently innovations.

It is in this gap that I situate my ethnography attempting to bring environmental anthropology analyses to bear on environmental education, and offering a framework for inclusive urban environmental education. I am interested in going beyond a simplistic critique of American society's tendency to privilege environmental stewardship values and scientific literacy. First, to say science is useless or inherently problematic when it comes to environmental education is superficial at best. Second, I want to explore how Euro-American stewardship values and scientific knowledges actively engage with, support, and also subjugate non-dominant knowledges and values. In focusing on the urban nature education *experience*, I link back to materialist perspectives that recognize the inherently embodied and necessarily productive aspect of human-nature relationships.

### **Field sites and methods**

#### ***A note on geo-theorizing & self-reflexivity***

Before I describe my research approach, I would be remiss if I did not acknowledge the ways in which my own identity as a mixed-race woman of color significantly impacted my choice of field site and the very personal ways in which I conceptualize these questions. Recently I have been introduced to work by Eve Tuck, Marcia McKenzie, and others who draw attention to the “tripled relationships” between Indigenous people, African-American slavery histories, and



white settlers.<sup>21</sup> Along with analyst and trainer Mistinguette Smith, they developed the Black/Land Project as a space that “identifies and amplifies conversations happening inside Black communities about the relationship between Black people, land, and place” (Black/Land Project 2018). Their approach provides some measure of context for the ways in which I consider the Los Angeles basin as a Tongva homeland, and as a settler colonial site of indigenous erasure and Black and Latinx suppression, bringing these problematics to light in the context of environmental education.

While this dissertation is a product of the important protocol and intellectual theory of academia, it also unwittingly participated in what the above scholars’ approach to “geotheorizing of Black relationships to land” (Tuck, Guess, and Sultan 2014). I conducted my research in the city where I was raised, and the neighborhoods that my extended family and many friends continue to live in, including myself. I am profoundly connected to the people of this place, though less so to the hidden histories of the landscape itself, something this work has led me to rectify. Certainly, my predominantly Black community’s tensions around gentrification have brought new understanding to the critique that Black people are landless. On the contrary, and linking to white settler practices, as Tuck, Guess and Sultan argue, “white settlers have no problem *giving* Indigenous land to Black people, until they want it back,” and despite Black (and “brown”) people’s place-making practices with that space (2014, 8). It is thus important for me to situate myself amidst these histories and the orientation I bring to my work as an “insider” scholar. Even more important, my positionality also drives my desire to effect change in my community, both

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<sup>21</sup> See also Byrd 2011; Tuck & Yang 2012; Wilderson 2010

in terms of cultivating a healthy relationship to land and nature, and in addressing racial and class inequities in the production of urban environmental place-identities.

### *Topography of urban environmental spaces*

To dig in to these questions, I visited and spoke with volunteers and staff at other parks and environmentally-oriented organizations working throughout the city including the Audubon Society at Debs Park, Eaton Canyon Nature Center, Madrona Marsh Nature Preserve, Stoneview Nature Center, the Wildwoods Foundation, and the Natural History Museum of Los Angeles. In doing this broader survey, I sought to get a comparative sense of what other organizations of similar size and focus were achieving within the city. With the exception of the Natural History Museum, they all functioned similarly, affirming my choice to make my research an organizational ethnography (Ybema et al. 2009). That is, I focused the vast majority of my analysis on the Los Angeles Audubon Society's environmental education program, within this broader framework of other environmental organizations and initiatives within the city.

A fundamental premise and key goal of environmental education programs is cultivating environmental stewards.<sup>22</sup> This is achieved through narratives of proper environmental care and use, individual responsibility, and moral imperatives, all while integrating romanticized descriptions of Native American land use as an example of the 'right' way to live with nature.

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<sup>22</sup> Certainly, Abrahamic religion has played a fundamental role in the continued perception and valorization of "stewardship" as a useful concept for human-nature interaction. One interviewee, a geologist who spoke at a docent training, spoke of this idea being instilled in him through his parochial schooling in childhood.

Content primarily takes the form of normative inquiry-based science, and urban green spaces are described as providing “excellent natural ‘laboratories’ for engaging students in scientific studies of the environment” (Taylor et al. 2008, 2). Accordingly, at the 2016 Annual meeting of the Los Angeles Audubon Society, the President described their education efforts as “growing the next generation of conservationists” through science learning (fieldnotes).

My first field site visit was to a park no more than a mile or two from my childhood home, yet one I had only been to a handful of times. I showed up to learn about being a volunteer docent for the Los Angeles Audubon’s environmental education program. The park was Kenneth Hahn State Recreation Area. As I followed a group of 6<sup>th</sup> graders from Culver City Middle School around that hot day in April 2013, I became intrigued. Chatting with the program director, who over the course of my fieldwork would become a good friend, I discovered this program was the younger sibling of a much older, venerated environmental education program they also ran at the Ballona Wetlands. After visiting the wetlands, I discovered a newfound appreciation for nature in Los Angeles, both for recreation as well as an interesting space in which to explore the nature values and knowledges that children are exposed to outside the classroom. The central location of these two sites within the heart of Los Angeles, and the ecological and geological relationship between these two sites as part of the Ballona Creek Watershed presented an opportunity for a uniquely place-based, holistic analysis of nature education in a deeply urban setting.

### ***Los Angeles Audubon Society***

In her seminal volume on nature study, Anna Botsford Comstock’s 1911 “Handbook of Nature Study” reminds teachers that in studying birds, the goal is to know the “life habits of the bird”

and that teachers should approach lessons as “joint investigation, and be boon companion in discovering the story” (23, 27). The programs I studied perpetuate the historic nature study approaches by merging science education in the local setting with experiential encounter, hoping to have a positive and long-lasting impact on children to create the next generation of environmental stewards. Of particular relevance to the organization I study is the central role of birding in the development of the nature study pedagogy which persists in environmental education today. As a bird conservation organization, the Los Angeles Audubon Society has its roots in early naturalists and nature study advocates.

The mission of the Los Angeles Audubon Society, founded over a century ago in 1910 in Highland Park, is to “promote the study and protection of birds, other wildlife and their habitats throughout the diverse landscapes of the Los Angeles area, and to stimulate popular interest in and access to nature for all Los Angeles communities” (LAAS 2018). LAAS works in the heart of the city because “this is where [the students] live... this is the part in their neighborhood. Its integrated into their daily life in a way that the tern colony isn’t” (Stacey, interview).<sup>23</sup> Still though, even in the city they focus on “real” nature places. As former organization president Travis Longcore explained, “They wanna save the earth, but don’t actually care about any one place.” In contrast to other environmental organizations, LAAS firmly situates themselves among those environmental organizations that cultivate as LAAS President Margot Griswold described, “people who love places and the species in them and find respite in them” as opposed to those organizations that “want to save the environment more abstractly.” Due to this unusual

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<sup>23</sup> The tern colony is located at Dockweiler Beach, and is the object of annual volunteer monitoring efforts.

approach, organizations like LAAS frequently find themselves in political and ideological opposition with the giants of conservation such as the World Wildlife Fund, the Environmental Defense Fund, and the Sierra Club. The LAAS strategic plan for the next 5 years echoes the mission, with the top goal being: “engage new members from all Los Angeles communities and inspire an appreciation of the natural world in the urban core and surrounding areas” (annual meeting 2018).

As with most environmental non-profits, the LAAS relies on its volunteers to achieve its mission of education and conservation in Los Angeles. At the 2018 annual meeting, the President of the Board informed attendees of the organization’s success in education and outreach thanks to its volunteer educators. The programs have demonstrated steady growth (see Appendix A). For the 2017-2018 school year, a corps of about 50 volunteer docents provided outdoor nature education for about 4000 students in grades 3-12. At the Ballona Wetlands specifically, this took the form of 40 docents leading 49 tour-days serving 28 schools. In the younger Kenneth Hahn program, a combination of 6 volunteer docents and 8 high school interns led 20 tours serving 14 schools.

LAAS environmental education efforts began at the Ballona Wetlands in 1991, long before it became an Ecological Reserve. The program takes place over the course of a school year, beginning with docent training. Volunteer docents attend training for 6 consecutive Saturday mornings at the wetlands, learning about the history and ecology of the landscape, supplemented by guest speakers giving research-based instruction on topics such as entomology, historical ecology, geology, bird watching, and nature interpretation methodologies. Before each tour, a docent visits the school to introduce students to the wetlands and what they will see and learn

while there. These pre-site visits are generally 1 hour and involve slideshow presentations and realia (taxidermized hawks, hummingbird eggs, etc.), and pamphlets of wetlands flora and fauna are distributed. The process is similar at the Kenneth Hahn Education program, which began with a permanent Native Plant garden, introducing school tours in 2009.

Each tour I attended served anywhere from 30-60 students and occurred at 10am-12noon twice per week at Ballona, and once per week at Kenneth Hahn. The tours were the meat of my research, as this is where students received both lecture and interactive instruction on the wetlands, in the wetlands. At Ballona, tours are broken up into visiting 4 “stations” scattered throughout the wetlands. These include the Bird Station on the Ballona Creek jetty, the Restoration Station, the Microscope Station, and the Observation Station. At Kenneth Hahn, the format is similar, with tours occurring on Friday mornings. Stations there include the Illustration Station, the Geology Station, the Natural Resources Station, and the site of the Baldwin Hills Dam failure.

The success of these programs could not be made possible without volunteers, however, it is important to consider who is able and desires to participate in this community of volunteers. Out of the 40 or so volunteer docents at Ballona, about 80% are retired white women over the age of 50. This number has not changed in the decades since the program started in 1990. One veteran volunteer is now 84 and still leading 2-hour tours through the wetlands weekly. Given the programs’ mission to expose minority youth to nature, it is important to consider the educators’ socio-economic and racial background, and whether/to what extent that may impact the content and relevance of the presented information (Sleeter 2005).

As Mary Kirby in her work on senior volunteers in the outdoors remarks, these individuals “share their lifetimes of experience, expertise and wisdom with the rest of the world” (2007, 11). I want to draw attention to the disconnect that occurs when these lifetimes do not align with the experiences of the students who are being taught, and those of their families and communities. When I asked docents about their background in relation to nature, many replied that they spend their youth camping or playing outside, others had farms in the family or attended sleep-away summer camps. Access to such resources is often dependent on class and location, with white suburban middle class families significantly more able to participate in these kinds of activities. The American Camp Association conducts an annual survey of summer and day camps in the United States. In 2016, based on responses of approximately 300 participating camps, 77% of campers were white non-Latinx (staff was 83% white non-Latinx), and over 75% come from middle or high income families (Wilson 2016).

Among LAAS program docents, only two did not have nature or outdoor experience as children, instead finding their personal nature affinity, and later the LAAS programs, through their school or work (Brent, Josh). The challenge of getting kids excited about nature and more broadly, getting them to develop a “better appreciation of things outside themselves” is a key motivator and aspiration of participating in nature tours. This is not to say that students can’t connect with their tour leaders or absorb the information they share. However, lack of representation wherein the environmental experiences and histories shared by educators reflect students’ own personal and community background hinders the integration of diverse voices in environmental narrative and practice, and makes it hard for these students to feel like they belong to the environmental movement writ large.

Alongside predominantly white female senior citizens, the environmental education programs also rely on student volunteers from local colleges (West LA, SMC, LMU), and volunteers and interns from Dorsey High. They are particularly important for the Kenneth Hahn program, which struggles to draw volunteers from the surrounding community. During my field research, I only met one non-student docent of color. After about 6 months in the field, Cindy asked if I could help with outreach to the local (Black) community, since I grew up in the area. I provided her with a list of stores, schools, and churches active in the neighborhood and that would be a good place to start. Cindy, a 50-something outdoorsy white woman, was cognizant of the difficulty. In an early casual conversation, she remarked that she knew people were hesitant to listen or be interested, and that they might be thinking, “who is this white woman coming in here?” (notes).

Their community-oriented, though not community-based, approach drives the 5 goals of the Strategic Plan, finalized by the Board of Directors in 2017. These are:

Goal 1: Engage new members from all Los Angeles communities and inspire an appreciation of the natural world in the urban core and surrounding areas

Goal 2: Develop education models from our programs that inspire students’ understanding and appreciation of nature and allow urban teachers to create their own outdoor curricula on every campus

Goal 3: Nurture new urban community conservationists through environmental education and habitat restoration programs

Goal 4: Engage in scientific study and monitoring of birds and their habitats in Los Angeles and surrounding areas

Goal 5: Use sound science to advocate for birds and nature in Los Angeles and surrounding areas

- *LAAS Strategic Plan writing retreat, 2016*

To achieve these goals, they employ a novel “school-shed” approach that layers community with ecology, by centering not only the programs but also the majority of participating schools within the Ballona Creek Watershed. In addition, the LAAS received funding for a Teacher Training



Fellowship Program, providing a series of 4 Saturday workshops to a cohort of LA-area public school teachers. The goal is to “help them develop strategies for using outdoor campus areas as instructional space” and “provide an out-of-school context where mentoring, collaboration, and idea-sharing among participating teachers is encouraged and fostered” (LAAS 2016). Teachers are provided instruction and assignments at various locations such as the Natural History Museum and the Baldwin Hills Scenic Overlook. While they are still working out the implications of such a model, there is significant potential for a new kind of environmental education that fully integrates local ecology with local community. All programs primarily target grades 3-5, offering free science-based nature tours with a special “emphasis on outreach to underserved, mostly inner-city schools” (LAAS 2018).

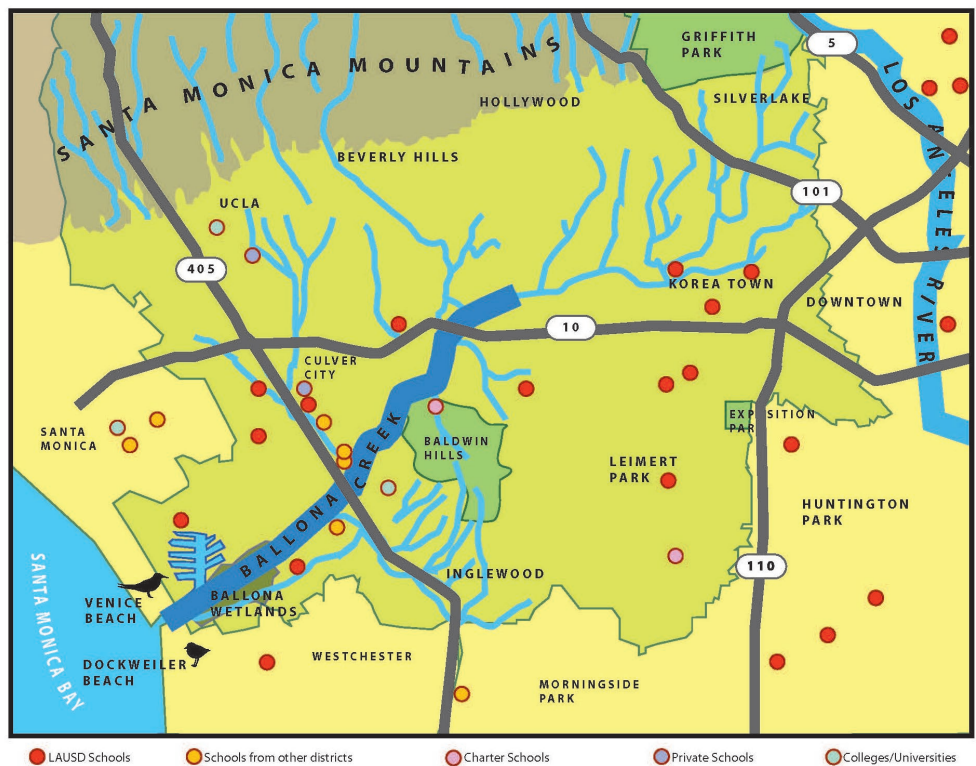


Figure 2: LAAS school-shed  
*Participating schools and intervention sites indicated. Light green: Ballona Creek Watershed, Medium green: key sites Ballona Wetlands and Kenneth Hahn SRA in Baldwin Hills.*

### ***Ballona Creek Watershed***

While many are aware of the Los Angeles River (in addition to the ocean) as the key water landmark in Los Angeles, the Ballona Creek Watershed is less understood. Yet, it is equally if not more important to how we construct inclusive urban nature education. The 130-square mile Ballona watershed's northern edge runs across the Santa Monica Mountains and Hollywood Hills foothills including Griffith Park, stretches east to Silver Lake and downtown Los Angeles, and goes as far south as Inglewood and the LA airport (Dark et al. 2011). The watershed drains west to the Pacific Ocean, running along Ballona Creek to empty in the Ballona Wetlands and Freshwater Marsh. More than 1.2 million Angelenos live within these boundaries in the heart of West L.A. Within these boundaries lie some of the most park-poor (4 park acres per 1,000 children) as well as park-rich (192.9 park acres per 1,000 children) neighborhoods in the city (Byrne and Wolch 2009). Park density and park access within these neighborhoods are, not surprisingly, closely aligned with race and class.

This region is also arguably one of the most recognizable portions of Los Angeles to outsiders, including neighborhoods such as Beverly Hills, Inglewood, Hollywood, and parts of downtown L.A., both major Los Angeles universities UCLA and USC, and major landmarks such as the Griffith Observatory, the Sunset strip, LAX, and to some extent the beaches of the Pacific Ocean. Amidst this rich human landscape is an equally rich ecological landscape of hills, fault-lines, and beaches populated with migratory birds, big cat predators, and a wide range of native flora and fauna. Consequently, the region is one of the world's foremost biodiversity hotspots.<sup>24</sup>

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<sup>24</sup> Los Angeles is the largest city in the California Floristic Province, one of the 35 biodiversity hotspot worldwide. Defined by British scientist Norman Myers in 1988, a biodiversity hotspot is a region with at least 1500 endemic

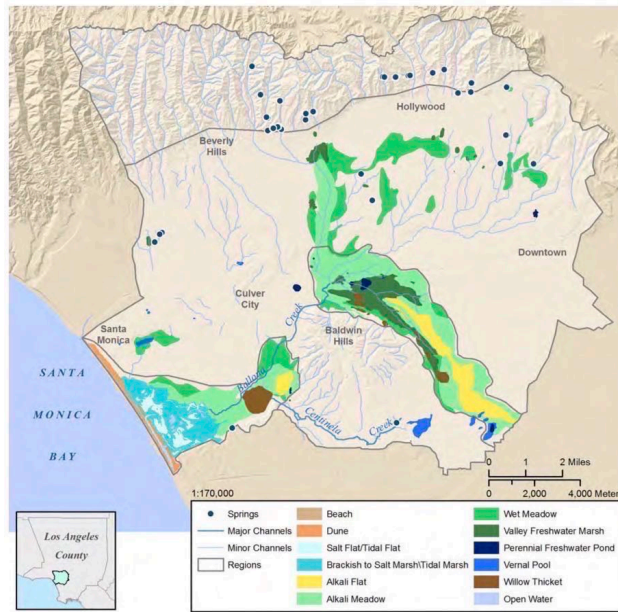


FIGURE ES-1: Distribution of wetlands and associated features within the Ballona Watershed (1850-1890).

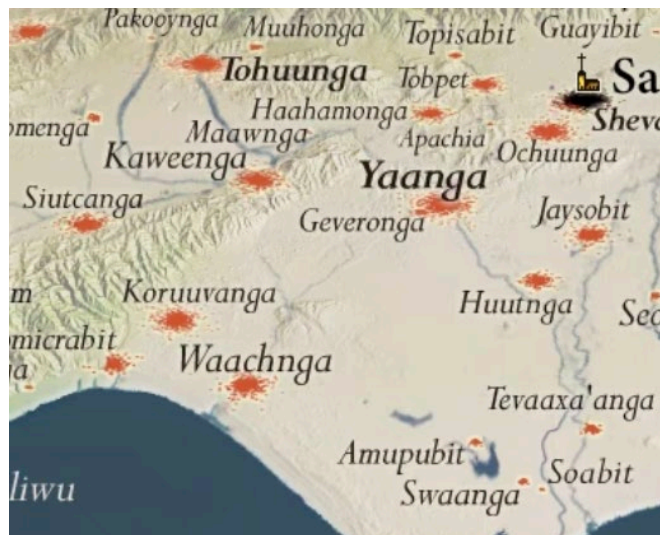


Figure 3: Ballona Creek Watershed maps

Map 1 indicates the ecological boundaries of the landscape, with key contemporary cities including Culver City, Santa Monica, and Baldwin Hills (Dark et al. 2011). Map 2 indicates the same general region with the sites of Tongva villages. Waachnga is where the Ballona Wetlands Ecological Reserve is located. Tracking north-east, a slight rise in the topography indicates Baldwin Hills, leading to Yaanga, now downtown Los Angeles (MILA 2018).

(native) species, and whose habitat has decreased by at least 70%. It therefore must be biologically abundant as well as under threat. In this framework, Los Angeles is ecologically on par with places like the mountains of south-west China and the tropical forests of the Andes (Conservation International 2018).

Historically, the watershed was dominated by the L.A. River, until it jumped its banks and shifted course in 1825, moving to empty in San Pedro. A new smaller watershed called Ballona Creek Watershed then developed, marked by numerous creeks and perennial streams, tidal wetlands, and freshwater springs. Though environmental educator Cindy Hardin pointed out that Spanish ranchers called the area La Ciénega for “Cien Aguas” - land of 100 waters, in fact the name Ciénega refers to a wetland system specific to the American Southwest.<sup>25</sup> With the Western expansion of the mid-1800s, the lands were rapidly developed, and the number of wetlands drastically diminished. This will become relevant later as we explore the environmental education program content, which places such high value on Ballona Creek as the last remaining LA-area wetland. Relatedly, I will also show how including an understanding of the history of the landscape, whether social or ecological, as one board member and docent trainer remarked, can “help [one] become oriented to this as a place” and “help us guide what we do and help people understand the place that they live in”.

Due to its ecological value, the watershed is becoming increasingly relevant as a framework for urban land and water management politics (Parkes et al. 2010, Blomquist & Schlager 2005). As Baldwin Hills Conservancy Executive Director David McNeill commented, the watershed “[is] the whole thing” ... “and makes it local”. A Ballona watershed map used by LA school districts and other environmental organizations describes the importance of a watershed thus: “A watershed is an important way to organize how we think about natural relationships between

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<sup>25</sup> “Ciénega” derives not from “cièn” (meaning 100), but rather from “ciéno” (meaning silt), in reference to the spongy soil marked by slow-moving water, often bordered by Arroyo willows and cottonwood trees along its banks and drier portions (Wikipedia 2018).

water, earth, & people”. When volunteer docents for the LAAS programs at both Kenneth Hahn and Ballona undergo training, they are taught that the watershed embraces everything they can see. Indeed, standing at the channelized Ballona Creek, one can view almost the entire Ballona Watershed, from the Pacific Ocean to the dry upland habitats leading towards Kenneth Hahn State Recreation Area and the Hollywood Hills. LAAS Board Director Margot Griswold even structures the school education programs in terms of a “school-shed,” inspired by the communal and integrated nature of watersheds.

The watershed approach therefore supports and reflects the multiple facets I examine in this dissertation. Understanding the history and continued existence of the watershed contributes to the valuation of urban nature as “real.” Using a watershed framework, projects like the LA County Parks Needs Assessment and the education programs work to develop a community of watershed users and inhabitants, thereby including both people and nature. Watershed awareness advocates hope an embodied experience of the watershed and its constituent parts will cultivate a sense of belonging. Environmentalists are hopeful that a scientific understanding of the mechanics and determining features of watersheds (hydrology, geology, ecology) will not only connect youth environmental education to school science standards, but also in the process cultivate citizenship values.

Politically, watershed governance –locally-led management of political collectives like cities and neighborhoods through a watershed framework – as a hopeful integrative framework has been suggested since the late 1800s (Worster 2003). Considered a way to transcend traditional political boundaries in the service of socio-environmental governance management, watershed

governance has been widely discussed, but minimally implemented (Blomquist and Schlager 2006; Parkes et al. 2010). Lack of adoption can be traced to conflict between federal and local regulatory structures, the misalignment between watershed boundaries and property lines, and the implication that land-users (and polluters) like big agriculture might no longer enjoy “safe harbor” from regulation (Lant 2003; Ruhl 2000). Such governance could potentially prevent real estate and commercial developers, or industries like agriculture and oil from over-developing sensitive watersheds such as the Ballona Creek Watershed. Even if were watershed governance to surmount these issues, the question remains whether a watershed lens can suffice to integrate the disparate experiences of urban communities, illuminate settler colonial underpinnings, and create enough space for epistemological diversity.

This setting and its attendant socio-political histories are woven in to the kinds of environmental knowledges and values that have developed. The Los Angeles basin comprises the homelands of the Tongva people. Los Angeles Audubon Society programs take place on these lands. Indeed, I wrote much of this dissertation on the unceded land of the Tongva people, in what is currently called the Baldwin Hills. Acknowledging this fact and their erasure is a key component of how I propose to reframe the discourse and practice of environmental education, and is central to the settler colonial and critical place framework I employed in this project. In addition to attending to racial politics and diversifying epistemologies, deesttling environmental education also requires a re-centering of indigenous histories in how urban Angelenos describe and interact with their lived environment (Tuck and McKenzie 2014).

## ***Ballona Wetlands Ecological Reserve***

The Ballona Wetlands Ecological Reserve is a unique coastal wetland as it also has inland wetland characteristics including vernal pools and riparian systems like the willow thicket still standing today. Critically, the Ballona Wetlands are the last remaining wetlands in the LA Basin. Ninety percent of them have been drained or filled for development - first agriculture and ranch land, then oil exploitation, then industrial and residential development. This fact is also a key jumping off point for education programs that through embodied interactive experience show students what it means for migratory birds to lose 90% of their wetland habitat.



Figure 4: Aerial view of Ballona Wetlands Ecological Reserve.  
*Primary area of student tours is marked in orange highlight.*



Figure 5: Students viewing wetland wildlife

Despite being framed as “untouched,” that this space has been and continues to be engineered is the subject of heated debate on how it should be restored. As an Ecological Reserve, it has use-rules in place that support certain activities over others, and seek to protect charismatic birds like the Great Blue Heron and Snowy Egrets that populate the Wetlands. It is a nearly-fully gated enclosure, with limited access determined by participation in programs that have access letters like LAAS and the Friends of Ballona. While not technically publicly accessible, it is in fact frequently open to the public - the Los Angeles Audubon Society hosts an “Open Wetlands” event on the first Saturday of every month, and the Friends of Ballona hosts 3 tours and 2 restoration/clean-up events per month. The Friends’ website also boasts that “75,000 volunteers have been involved in hands-on dune restoration” (Friends of Ballona 2016). It is in this setting that the primary organization I studied, the LAAS, conducts weekly tours.



### ***Kenneth Hahn State Recreation Area***

In his keynote speech at the 2013 Dam Commemoration Ceremony, elected official County Supervisor Mark Ridley-Thomas said “we now have a beautiful park with sweeping vistas... We continue to make improvements to make the park more attractive and accessible to its users...”. The aesthetic aspects of the park, much in the way National Parks like Yosemite and Yellowstone are celebrated for their sweeping vistas, are leveraged as a tool for community development. Similarly, in a pamphlet advertising the Baldwin Hills Parklands, Kenneth Hahn is described as “A place to see a hawk... a place to catch the fresh scent of sagebrush... a place to pause on the trail... “giving all of us a place of rare peace and tranquility, where we can catch our breath and remember that the natural world also has an important place in our lives.”

If the Wetlands are defined by their ecological role for the fish and birds that inhabit them, Kenneth Hahn State Recreation Area (Kenneth Hahn) is defined by geology, native flora, and extensive recreational use. Situated at the top of Baldwin Hills, it is the product of tectonic activity along the Newport-Inglewood Fault. Oil was discovered in these hills in 1925.

Exploitation continues today and has been subject to public debate over the use of fracking; residents on a neighborhood website claim an increase in odd-smelling water and cracks in home foundations. A reservoir was built on this hilltop in 1953, but only 10 years later, in December 1963, the dam failed and millions of gallons of water flooded the surrounding neighborhoods, resulting in 5 deaths. The dam was dismantled, and eventually replaced with a State Recreation Area, complete with stocked man-made pond, hiking trails, picnic areas, eucalyptus groves, and a Japanese garden. The landscape in and around Kenneth Hahn presents a complicated history that also contributes to the form and content of environmental education programming.

In addition to the extensive recreational nature areas provided by the park, it is also an ecologically important site. According to a geologist participating in docent training, the rugged hills and hydrological connection to Ballona Creek make this space a key resting ground along the Pacific Flyway for migratory birds. These hills represent over 2 square-miles of undeveloped land, 450 acres of which is parkland, mostly in the Kenneth Hahn State Rec Area. As such they are also the last large open space in the entire watershed, and as in the past, its waters still drain into both the Ballona Creek and its tributary, the smaller Centinela Creek. The smaller Wetlands are in many ways wilder as they are only minimally accessible by people; the Baldwin Hills and KHSRA despite extensive pedestrian traffic is still blanketed in native Southern California coastal sage scrub habitat.

These links are made apparent in the long-term programs for a Baldwin Hills Master Park Plan, which asserts that “each individual decision we make contributes to the health of a watershed and of the places we value” (Baldwin Hills Conservancy 2002). And yet, the Chief Deputy Director for LA County Parks and Recreation also remarked at a community event in 2017 that Kenneth Hahn is considered “a quiet place to sit and enjoy nature.” Further, the KHSRA Trail map gives users instructions on how to use the space that directly invokes stewardship values. One side of the pamphlet says “Leave no trace on open space” with six actions to take while visiting the park: Manage your dog, Pick up poop, Trash your trash, Leave it as you find it, Stay on trails, and Share our trails.” As I will show, such framing is common-place in environmental discourse. While undeniably valuable in preventing nature from being abused by careless visitors, it also risks reinforcing a conceit of nature as primarily a place to which you can go to escape the harsh realities of civilization and “our own too-muchness” (Cronon 1995, 69). This

kind of relationship valorizes a vision of “nature-out-there” that must be preserved, in contrast to framing nature as interwoven with daily life and leaving space for that interconnectivity.<sup>26</sup>

## **Methods**

It is in this context that I set out to conduct over 15 months of fieldwork, from spring 2013 through fall 2014, along with repeated return visits and conversation while writing this manuscript. The research was primarily ethnographic in nature, with some inclusion of material culture and archival ephemera analysis. I centered my research on the two key nature spaces within the Ballona Creek Watershed – the Ballona Wetlands Ecological Reserve, and Kenneth Hahn State Recreation Area. Within those spaces, while I hoped to study multiple environmental organizations, it turned out they were few, with most major environmental non-profits preferring to concentrate their energies on “real” nature outside the city.<sup>27</sup>

Though like many dissertation writers I initially worried that I would not gather enough data especially using this approach, these fears were unfounded. The LAAS programs are particularly prolific, reaching thousands of school-children each year, and operating in two centrally located

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<sup>26</sup> Further, valorizing wild places and their preservation privileges an historically white dominant nature experience and neglects the historically and culturally contingent and often oppressive ways other groups interact with or avoid these spaces. As others have shown, these can include: Black cultural memory, and in some places continued reality, of the woods as life-threatening (Eyerman 2001), but also of southern foodways (Bower 2008); Latinx precarious dependence on big agriculture and migrant farm work (Holmes 2013) but also community-building in urban gardens (Hondagneu-Sotelo 2014); indigenous erasure from their homelands (Wolfe 2006), but also culturally significant place-names and story maps (Basso 1996; MILA 2018).

<sup>27</sup> These include major environmental organizations such as Sierra Club and Outward Bound.

urban nature spaces. The 2013-2014 school year of my study was actually the largest to-date at the veteran Ballona program, with 2865 students served, a 20% increase over the previous highest outreach numbers. Data sources were three-fold, including: 1) participant-observation at educational programming and related events; 2) student and teacher surveys; 3) docent, speaker, and other stakeholder interviews; 4) material culture and other ephemera. I conducted over 250 hours of participant observation ethnographic research, producing audio recordings, written fieldnotes, and photographic documentation of over 150 tours and pre-site visits, 40 docent trainings, and dozens of community events. I wrote and distributed over 300 surveys to student participants, to which I received 243 responses (Appendices B and C). In addition, the education director provided me with approximately 80 student thank-you letters and teacher evaluations of the program for additional analytical material.

Simultaneously, I conducted nearly 50 semi-structured in-person interviews each lasting 45-75 minutes, along with numerous informal conversations. Interviewees included LAAS volunteers and staff, as well as leaders and members of nearby environment-related organizations like the Baldwin Hills Conservancy, the Natural History Museum, the California Department of Fish & Wildlife, and the California Department of Parks & Recreation, in addition to a range of Nature Centers. Community members of the residential areas surrounding key field site of Kenneth Hahn SRA were also included. I also collected various elements of material culture such as tour outlines, maps, brochures, pamphlets, archival photos, etc. to support the analysis. After data collection was completed, I received a small grant to hire an assistant to transcribe the interviews. I then transcribed all tour audio recordings and analyzed the related photos and fieldnotes. Finally, I used the qualitative data analysis software maxQDA to sort and code my

data into thematic groups that reflect the underlying settler colonial, urban socio-natures, and normative scientific epistemological themes I identified during my fieldwork.

## **Chapter Map**

The data presented in this dissertation elucidates and destabilizes the Eurocentric hegemony of environmental narratives, practice, and experience as exemplified through environmental education and community place-making efforts in urban Los Angeles. I use this story to articulate the importance and potential of a rhizomic (Ogden 2011, Deleuze and Guattari 1988) environmental education paradigm, whose seeds are already embedded in existing environmental education programs. In Chapter 1, I lay bare the settler colonial ideologies around nature definitions and possibilities of experience that underpin environmental discourse in contemporary America. I focus on this topic particularly as it relates to the definition of “real” or authentic nature in the urban setting, and programs’ uncomfortable preoccupation with indigenous peoples and plants in the same frame.

Moving from the setting towards the environmental education programs themselves, Chapters 2 and 3 investigate the knowledge and experience offered and valorized by such programs. Chapter 2 explores how scientific inquiry methodologies are implemented as the “doorway to wonder” in environmental education. Chapter 3 by contrast highlights the subjective and visceral qualities of outdoor EE. Together, these chapters examine the tensions and frictions of this dual approach, and how it might generate alternative possibilities for an objective methodological and subjective experiential nature learning paradigm.

In Chapter 4, I expand on these tensions to explore the interplay of race and nature in the context of urban environmental education. In particular, I consider how white Eurocentric worldviews, inclusive of settler colonial wilderness logics, obfuscate the histories and lived experiences and knowledge of people of color vis-à-vis nature. Chapter 5 offers a new rhizomic framework for a social justice and community-based form of environmental pedagogy that situates epistemological pluralism within the context of emplaced histories. I suggest that truly diversifying science as well as environmentalism requires increased attention to the layers of local place and history, plural epistemologies, and culturally situated practice and memory in the production of urban environmental education. Doing so will better serve humanity, especially city-dwellers of color, as we head towards a precarious environmental future.

## CHAPTER I: “REAL” URBAN NATURE

### Introduction

The city of Los Angeles is often termed a “concrete jungle,” an intentional jab at the city’s notorious lack of nature in favor of concrete roads, concrete buildings, and concrete schoolyards. A closer look reveals a much more complex landscape where a hipster in the Silver Lake neighborhood might encounter a coyote on a morning jog, or a child may discover a new species of gecko on his front porch. The Chevron oil refinery in the beach town of El Segundo supports the preservation of a dune landscape right next door in order to preserve habitat for the native El Segundo blue butterfly. Native coastal sage scrub habitat is found in the wildernesses of the Santa Monica Mountains Recreation Area, and increasingly in the re-landscaped yards of suburban homeowners.

Considering urban Los Angeles as a bellwether city for understanding urban nature and wilderness offers a novel way to evaluate the design and execution of urban environmental education programs. Recently, I returned to the Ballona Wetlands towards the end of a school tour to meet up with my key informant and get some additional statistical information from her on tour numbers during my fieldwork year. The tour was running late so I arrived a few minutes before it was over, as students were still returning from their excursions, walking in single file to the starting point. As they arrived, they dropped off their borrowed binoculars on the staging tables for docents to bag up - with approximately 60 students, I lent a hand and caught up with docents I had volunteered with and interviewed a few years back. Most were return docents, though there were a few new (surprisingly, even a couple of younger) faces there. As we packed up binoculars and folding tables to put back into the trailer we share with the Friends of Ballona

(who lead volunteer restoration efforts and student tours at Ballona), docents reflected on the students and their participation.

Students meanwhile gathered on log benches, dumping sand from their shoes and chattering about lunch. After the students and docents had left, I spoke with Cindy about the difficulties I was having in framing her program in my dissertation. Developing a friendship with her over the last four years has made it easy to have very open conversations about her work and values, as well as my own. After a meandering conversation about race, nature access, and the public school system, Cindy volunteered: “What we do is get kids out into the real. This is real nature, and it’s right here in our city”. An inspiring idea, the concept of “the real” is also analytically rich, especially as it applies to science learning in nature and environmental education more broadly. It echoes cultural geographer Bruce Braun’s discussion of nature being framed as separate, “a place to which one *goes*” (Braun 2002, ix). However, the valuable addition to this trope is that, for Cindy, wild “real” nature is also right here. It can be accessed, in pockets, *within* the city as well as *out there*.

The idea of “real” nature in some ways parallels anthropologist John Jackson’s ethnographic work in Black Harlem and its attendant analysis of the ways in which “sincerity and authenticity have very different ways of imagining the real, different ways of ‘keeping it real’” (2005, 12). Applying this lens to “real” urban nature, it becomes possible to see how the valorization of landscapes portrayed as *authentic* wild nature can sometimes discredit the *sincerity* of wild nature experiences city-dwellers may have in both those and other spaces. As Jackson describes, today objects and places are deemed authentic, while interpersonal relationships are described on



a spectrum of sincerity; “where authenticity lauds content, sincerity privileges intent” (2005, 18). Further, attending to sincerity of experience rather than, or in addition to, the authenticity of place can enable a richer conversation about urban nature and a valuable understanding of the importance of subjectivity and differential social locations in nature learning. Tiny ants (from Argentina)<sup>28</sup> invading our kitchens, flocks of green parrots (from eastern Mexico)<sup>29</sup> in Pasadena, and the ubiquitous statuesque Los Angeles palm tree (from Mexico or the Canary Islands)<sup>30</sup> are perhaps not authentic as wildlife nor as native to the region, but they do participate in sincere experiences and understandings of urban nature in LA.

### **Settler colonial underpinnings**

Wildness as the lesser cousin of wilderness is more relevant to urban nature, though “wildness” still is framed as a “pristine exterior, the touchstone of an original nature [and] sets the parameters of contemporary environmental politics” (Whatmore 2002, 9). Problematically, this perspective “leaves no place for human beings, save perhaps as contemplative sojourners enjoying their leisurely reverie in God’s natural cathedral” (Cronon 1995, 81). The valorization of wild spaces is anchored in settler colonial wilderness ideologies that exist on the far end of a

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28 These extremely invasive ants arrived on cargo ships in the 19th century and rapidly spread, even adapting to their new urban environment with new social behaviors unlike their origin colonies in central south America. (Newitz 2016)

29 Urban legend says the flock started as escapees from a burning pet store, or from Busch Gardens when it closed (Goldman 2018)

30 Only one species, the very tall slender ones that line L.A. boulevards, is native, the rest coming from Mexico, the Middle East, or even the Canary Islands. (Masters 2011)

nature-culture dichotomy,<sup>31</sup> wherein wildernesses are those spaces that have been “untrammelled by man,” and as such are worthy of preservation and conservation. Recognizing the cultural underpinning of this construct lays the groundwork for deconstructing the supposed universality of American environmental values.

Settler colonial societies are those “liberal democratic settler states of the former British empire with indigenous minorities” (Cattelino 2011, 2). In a seminal work on the subject, Wolfe defines settler colonialism as persistent structural logic wherein European colonists destroy existing people, culture, and land practices to replace them with their own, thus enabling and justifying two primary goals – land acquisition and ownership, and the displacement and erasure of indigenous peoples (2006). The colonization and settlement of America was predicated in part on institutional framing and public acceptance of the land as uninhabited, a *terra nullius* waiting for the arrival of settlers to lay claim to the land and make it productive. Indeed, the “construction of the United States positioned whites as rational agents capable of intervening in and transforming nature into productive property, thus justifying the taking of Native lands” (Reardon and TallBear 2012, S235; see also Harris 1993). Thus, it didn’t matter that the land was already inhabited by indigenous Americans; operating through the lens of race, to white European settlers, the inferior and uncivilized “red man” impeded the acquisition of land that they saw as

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<sup>31</sup> The falsehood of this dichotomy has been resoundingly refuted in contemporary anthropological and geographic scholarship, by analyses variously examining the social construction of the nature concept (Braun 2002; Cronon 1995; Raffles 2002), the “co-production of socio-nature” (Bakker & Bridge 2006; Braun 2002), and multi-species relationships (Kirksey and Helmreich 2010; Ogden 2011; Tsing 2012, 2013)

their God-given right.<sup>32</sup> Harris articulates this worldview as creating whiteness as property, wherein, those who possess whiteness give them the right to racialize and subordinate the “Other” in order to “solidify the exclusive parameters of whiteness” (Reardon and TallBear 2012, S235).

The twin components of wilderness valorization and indigenous erasure persist in the construction of environmental education in “real” nature spaces in urban Los Angeles. Indeed, it has been argued that the “ideology of unpeopled wilderness developed in the United States as part of the settler colonial project” (Cattelino 2017). The following sections demonstrate this point, emphasizing how wilderness and indigeneity (people, flora, fauna) then are bound together to constitute what is often considered “real” nature in American settler colonial nature discourse, and consequently, in environmental education programs, even in the urban setting. Further, I will show how these interconnections are often poorly recognized or intentionally masked in the production of nature knowledge and experience. I therefore work to deconstruct “real” nature to show its settler colonial underpinnings, and to illustrate a need to reintegrate this history in order to destabilize wilderness ideologies and indigenous erasure in urban environmental education.<sup>33</sup>

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<sup>32</sup> The logic of race as a justification for white European dominance acted differently depending on colonizers’ goals. For Native Americans, their presence blocked land access, so blood quantum regulations meant that the indigenous race could be dissolved through processes of assimilation, child abduction, resocialization, etc. For Black people brought to the U.S. as slaves, the goal was not acquisition of their land, but rather the accumulation of slave labor such that alternative regulations such as the “one-drop” rule applied. While colonists wanted to eliminate Indians to take over indigenous lands, these same settlers wanted to acquire more slaves to work these lands (see Wolfe 2006). The reverberations of Indians as being ‘in the way’ of settler colonialism persists in the way that Indian history and contemporary presence is erased in the service of urban development.

<sup>33</sup> Of course, this kind of separation is more fiction than reality (Cronon 1992). Throughout human history, people have interacted and lived within and alongside nature, for the simple reason that as land mammals our societies are necessarily based in and around nature and wild spaces. The economics of craft cheese making in rural Vermont (Paxson 2010), rural towns like Clewiston, FL that exist and persist primarily because of the big

### *Settler colonialism and political economy in Los Angeles*

To destabilize the settler colonial underpinnings of environmental education, I first demonstrate how even the modern mega-city of Los Angeles continues to be marked by a settler colonial frontier history. Situating this research in the urban setting is analytically important as it applies settler colonial analyses to the politics of urban structures and socio-natures (Swyngedow and Heynen 2003). I would be remiss if I did not also address how the political economy of capitalist urban development interacts with settler colonial imperatives to further enable associated beliefs about urban nature and wilderness. Methodologically then, I draw on Foucault's approach to viewing the city as a "metaphor or symbol for the territory on how to govern it" to consider how the processes of Los Angeles' development illustrate the intersecting desires of capitalist development and settler colonial values (Foucault quoted in Edmonds 2010). That is, the city's form and politics are both the matrix or substrate within which the regulatory mechanisms and imperatives of the state take shape, and also the mechanism for the creation of state subjects.

### *Settler colonial wilderness*

Geographer Yi-Fu Tuan tells us that "space, not place, tantalized Americans when the frontiers were open and resources appeared limitless" (Tuan 1975, 164). The Western frontier was therefore "a space that divided settler from American Indian occupancy and, in a misplaced Lockean view, divided productive from not-yet-productive uses of land" (Cattelino 2009). The uniquely settler colonial concept of the frontier, described by Frederick Jackson Turner as "the

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sugar industry (Cattelino 2015), and the green wild landscapes of American pastoralism as transformed by industrialism (Marx 1964) all point to this richer interconnected reality.

outer edge of the wave – the meeting point between savagery and civilization,” aimed to separate what was considered wild from civilized, and echoes throughout the socio-political practices of settler colonial societies (Turner in Limerick 1988, 21). Penetrating the frontier and claiming lands either for wilderness preservation or private property for progressive narratives of development and agriculture are therefore fundamental to the making of settler colonial identity and even American nationhood.<sup>34</sup> Part of the settler colonial frontier work took the form of “dividing, mapping, and measuring of territories once claimed as ‘empty spaces’ now depicted as ‘pristine landscapes’” (Cruikshank 2005, 213).<sup>35</sup>

Non-productive (picture the geysers of Yellowstone or hilly forests of Yosemite) and purportedly uninhabited (except by indigenous people who were considered “part of nature”) were acceptable for wilderness preservation. The 1964 Wilderness Act codified into law this settler colonial wilderness logic: “a wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain” (Wilderness Act 1964). Seemingly simple, it encapsulates all that wilderness has come to symbolize in a settler colonial society: wildlife, lack of humanity in a large natural space, and ultimately unknowable.

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<sup>34</sup> According to Harris (1993) this “embedded the fact of white privilege into the very definition of property” (see also Bang and Marin 2015).

<sup>35</sup> The long and complex interplay of productive labor and nature has been the subject of critical and extensive scholarship, notably by Karl Marx (1972). See also Foster 2000 Foster, Marx’s Ecology (2000).

In Los Angeles, what was once perceived as an empty space at the end of the Western frontier has been subjected to centuries of intensive urban development. This drive is situated in a settler colonial society whose political economy, as David Harvey puts it, “is expressed in colonial land policies... in which the powers of private property and the State were to be used to *exclude* laborers from easy access to free land in order to preserve a pool of wage laborers for capitalist exploitation” (1981, 5). The commodification of place perhaps fuels desires to mark certain (non-productive, undevelopable) nature spaces as pristine landscapes in fact persists in the design and management of urban nature places like Griffith Park and the Ballona Ecological Reserve. For example, residents who advocated for Ballona preservation formed a coalition called “Citizens United to Save ALL of Ballona” are proud that they were able to save these “empty lands” from the hands of developers.<sup>36</sup> As one advocate wrote, “these open lands are where the wild things are. They are not just empty spaces for someone to get their hands on and develop or renovate, they are not places to rescue pets” (Hicks 2015).<sup>37</sup>

Wild nature in Western cities like Los Angeles remain sites where the disparate imaginings of land use clash, driven in part by the political economy of urbanization and development characterized by the “enforced self-sufficiency of localities” (Logan and Molotch 2007, 3). This explains the asymmetry of land use desires – those who are capable of making money from the land, as in through development – are those who have the power to dictate its use. It explains

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<sup>36</sup> See also Dana Cuff’s 2002 work that examines the development of land in Los Angeles and its relationship to wilderness.

<sup>37</sup> The battle continues, as exemplified by the backlash against the influential Annenberg Foundation’s plan to locate a pet adoption center on upland habitat, or the current proposal by the Army Corps of Engineers to restore the wetlands (Zheng 2013). See also Cockburn (1997) for an original story of Ballona preservation.

why the South Central Farm, used for subsistence by immigrant Latinx family, was demolished by a developer who claimed to be able to make money off of the land (yet the land still remains unused). Bringing in race, it is no surprise that those in power, who can and desire to make money off of the land, are part of the hegemonic white minority. As Logan and Molotch, drawing on Harvey, describe, “people dreaming, planning, and organizing themselves to make money from property are the agents through which [capitalist] accumulation does its work at the level of the urban place” (2007, 12). A political economy analysis of the drive to make land productive therefore builds upon an understanding of the acquisition of territory as a driving factor of settler colonial societies.

### ***Settler colonial indigeneity & racial segregation***

In addition to the political positioning of wild land and wilderness, settler colonial cities support white categorizations of “the Other” in the spatiality of urban planning. As historian Penelope Edmonds remarked, “something happens in settler cities. The syntax of settlement reconfigures bodies and spaces, politics and geographies” (2010, 9). The transition from porous and fluid frontier settlements to industrious towns and cities meant the “the boundaries of whiteness were spatialized and litigated,” ordering and segregating minority groups as well as nature spaces into clearly defined, manageable zones. In Los Angeles, rapid development and appropriation resulted in increasing regulations on the use of urban spaces, both for indigenous groups experiencing erasure, and immigrant and other minority populations as a labor force whose “rights to the city” were and continue to be profoundly restricted (Lefebvre 2003s, Butler 2012, Soja and Scott 1996, Davis [1990] 2006).

Through this process, physical urban barriers (ex: gated communities, siting of industry) and even legal policies (ex: redlining) group and restrict minorities and low-income people into spaces with the least amount of nature. Consequently, despite being a minority-majority city with over 50% Latinx residents (US Census Bureau 2010), the interests and boundaries of the city benefit the interests of white residents (historically, settlers). For African-American and Latinx communities in particular, too often this spatialization translates into being park-poor and nature-deprived (Byrne et al. 2007; Wolch et al. 2005). This history informs environmental justice literatures that examine the negative quality of life experienced by these communities (Bullard 1996, Sze 2007; Wolch et al. 2014) to broader discussions of the settler colonial interplay between race and nature (Braun 2003; Mar & Edmonds 2010; Pulido 2017).

### **Crafting “real” nature**

The wilderness values and indigenous erasure are inseparable in the production and management of “real” nature. The creation of National Parks like Yellowstone and Yosemite was brought forth by the intentional visual erasure and physical removal of indigenous people from the landscape (Spence 1999; see also Braun 2002 and Edmonds 2007). Where indigenous presence is acknowledged, they often become part of a historical past. The discourse of wilderness intersects with, and in many ways necessitates a discourse of indigeneity. These frameworks are evident in the nature spaces of Los Angeles used by the Los Angeles Audubon Society for their environmental education programs and are used to give value to “real” nature for cultivating environmental knowledge and experience.



I have come to identify “real” nature places as those that are considered the most wild, that *appear* the least altered, even though they are often in fact some of the most altered in the city. Through such processes, these spaces are actively identified as wilderness areas, and made accessible in specific ways through trail walks, volunteer activities, and scenic overlooks. This is common.<sup>38</sup> Secondly, in the education context, “real” nature must also be accessible or in proximity to students’ lived lives. Nature can only become real, particularly to underserved students, if they are able to enter the landscape and connect to it as an individual, as opposed to distant and often inaccessible places like Yellowstone or the Amazon. This presents a fundamental paradox of urban nature education, and one which local non-profits like LAAS try to address, by taking students to the bits and pieces of “authentic” nature that persist in the urban landscape. Through this discussion, I will problematize such efforts by advocating for a *sincere* rather than authentic nature experience, allowing for a broadening of the definition and content of urban nature, and speaking to social justice concerns that situate learning within the physical and experiential communities that environmental education programs seek to reach.

“Real” nature is presented as authentic to the local landscape’s indigenous and ecological history. Within this frame, “real” nature places seem to be correlated with *native* natures, pointing to

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<sup>38</sup> For example, in the early years of Glacier National Park’s formation, hundreds of coyotes, wolves, and mountain lions were killed to increase the numbers of ‘preferred’ species, even importing desired animals from Yellowstone in 1912 or sowing hayseed to draw wildlife closer to where visitors could see them (Spence 1999). Similarly, early fire management efforts in National Parks were extremely restrictive, seeking to control fires that were seen as detrimental to the natural beauty of the place (ignoring the use of purposeful burns by prior Indian inhabitants, and unaware of the benefits of controlled burns for a healthy ecosystem) (Cronon 1983).

“invasive species management and the embrace of native species [as] affective projects that operate distinctly in settler colonial societies like the United States” (Cattelino 2017, 129). Adding further complexity, indigenous peoples are not simply equated with nativeness. Instead, by advocating pre-historical *native* natures, and conducting invasive species management, settlers “often narrate and enact a kind of nation-building and nation-sustaining nativeness... that render the settler state its rightful inheritor and steward” (Cattelino 2017, 131, 134).

Contemporary environmentalists continue to romanticize the myth of the ecological Indian; indeed it is a fundamental component of environmentalist critiques of industrialism. Kay Milton argues that “without the assumption that non-industrial societies live sustainably in their environments, there would be no grounds for arguing that industrialism is the cause of environmental destruction” (Milton 2003, 109). While I’m not sure that this binary points to causality, framing environmental sustainability as the antithesis of modern industry certainly provides rich fodder for environmentalist battle cries. Scholarship by Native and non-Native scholars have shown the worldview of many indigenous societies is primarily place-bound, recognizing the cyclical dynamism of the natural world and the interconnectedness of all species (Barnhardt and Kawagley 2005; Cruikshank 2012; Zanotti 2012; Zarger 2002). The problem lies in the essentialization and generalization of such worldviews as representative of all Indians. Even more urgently, when deployed in this fashion, Indians depicted in the environmental movement “instead of coeval global citizens with urgent concerns and varied opinions, they are Indians of the imagination” (Willow 2010, 75).

This chapter will therefore explore the complex and profoundly settler colonial ways in which nature and indigeneity are co-produced in the construction of “real” *native* nature places.

Specifically, I will discuss the construction of “real” nature places through processes of land management, loving native species and restoration work, and narratives of indigeneity. For the latter, I consider how indigeneity is selectively written into and out of these “real” nature spaces, to construct a narrative that idealizes indigenous histories without considering native futures and presents. Together, these participate in specific kinds of nature place-making, and place the greatest value on “real” nature with native plants and indigenous histories.

### ***Ballona Wetlands: Unaltered and unreachable***

The Ballona Wetlands Ecological Reserve, often framed as the last remaining coastal wetland in LA County, is a protected area widely seen as real nature. Literary scholar Peter Fritzell wrote that wetlands “force you inward, both upon yourself and upon the nonhuman world. They do not give you grand views; they humble you rather than reinforce your delusions of grandeur”

(Fritzell 1978). Anthropologists Paige West and Dan Brockington discuss protected areas in particular as spaces that “necessarily seek to protect nature and biodiversity by abstracting them from their complex social contexts” (2006, 610). Certainly, when discovering that the landscape has in fact been repeatedly altered for centuries, visitors and new docents are often surprised.

During docent training at Ballona, first-time volunteer docents are walked out to the observation platform that juts out into the wetlands. Listening to my recording of the training, I hear the crunch of footsteps along a path made of dirt, sand, and gravel, the sound of planes overhead almost drowns out the participants’ commentary. Still, lead docent Cindy raises her voice to describe the platform as “the old track line for the Pacific Electric Railway which ran here for

many many years, the terminus was a big pleasure pier at the turn of the century.” She goes on to describe housing developments, celery farming, and the building of Howard Hughes’ *Spruce Goose* in and on this landscape, to the evident dismay of participants who huff and sigh at the news (fieldnotes). Looking over the salt pan and pickleweed marshes, it is as hard for the docents as it is for me to imagine this landscape looking any other way. The discovery of its very human history works to shatter the wilderness illusion that dominates the imagery and narratives intended to highlight the native-ness of this place.



Figure 6: A) Ballona Reserve, 2015; B) Ballona Harbor, 1902  
*A) 2015 photo by author. B) Ballona Harbor at Playa del Rey. In Security Pacific National Bank Collection. TESSA Los Angeles Public Library.*

During one tour of students (and a surprisingly high number of parent volunteer chaperones) from a Mar Vista school, the parents were skeptical of the docent’s assertion that “research indicates that areas like this one [slight mound in the wetlands] are shell middens, sites where the local Tongva would discard shells from their meals.” Several shook their heads and whispered comments to the effect that ‘she doesn’t know what she’s talking about’ (paraphrase, fieldnotes). Their skepticism perhaps indicated doubt that there could have been indigenous people modifying the landscape in ways that are still visible today. To maintain the illusion of an

untouched landscape, the Reserve is actively managed to resemble a pristine landscape, a “remnant of fast-receding wildness” (Howarth 2001, 66). While at Ballona it is rare to see any official land managers or employees; land management activities unfold both by policing human landscape use, and through tending the flora, fauna, and even hydrology within the landscape to achieve particular outcomes. This invisible management only serves to reinforce the perception of the Wetlands as unchanged, ‘real’ nature.

The managerial focus of Ecological Reserves like Ballona is on protecting wildlife, whose zoning protects all living marine resources from hunting or disturbance. Though humans have access to it, access is dependent on permits, such as the “access letters” written by the land manager and renewed on an annual basis given to the LA Audubon Society and the Friends of Ballona in order to minimize harm to the ecosystem. The need for a letter to access the environment speaks to the paradoxical link between management and ownership of what is technically public land. The Reserve is one of about 120 in the state, covers about 600 acres and includes wetland and upland habitat, along with the freshwater marsh. According to current CA Department of Fish & Wildlife land manager Richard Brody, a biologist by training, his job has two basic functions - “to protect the natural resources, and educate the community, and provide access, and protect public safety while they’re visiting the reserve, making sure the place is environmentally intact and available for education and is a safe place to visit. For Brody, this means his role at the wetlands is in many ways that of a sheriff; his mantra is simple: “clean-up, evict, patrol.”

This kind of work is indicative of the wilderness ethic integral to settler colonial societies where ‘real’ nature is not inhabited by people. I later identified a *Los Angeles Times* editorial piece on just this issue, describing how Brody, with the assistance of law enforcement, scouted the Reserve’s 640 acres, informing the homeless (upwards of 70 people in 35 camps) that they had 72 hours to leave the premises (Editorial 2014). The ousting of homeless encampments (from a landscape that became their home) is in great part tied to state plans to preserve the wetlands. The article describes how preservation necessitates people staying off the wetlands - “trampling the ground and destroying vegetation leaves dirt too compacted for creatures that burrow and wipes out bushes and grasses for foraging by small birds and other animals” (Editorial 2014).

Framing human presence as detrimental to non-productive landscapes is another way in which wild spaces in settler colonial societies are framed as in need of protection by yet separation from people. For example, at the Eaton Canyon Natural Area near Pasadena, maps identify the space as a “rugged wilderness area”. The main trails in this “wilderness” - the Junior Nature Trail and the Oak Terrace Self-Guided Nature Trail - are easily accessible, with numbered stakes and signage. Like many nature spaces with purportedly wilderness or wildlife areas, trail pamphlets entreat visitors to “take time to stop, look, and listen for the birds and other wildlife all around you!” while being sure to “stay on the trail and do not disturb the plant or animal life.” Staying on the trail is integrated into the definition of real nature spaces; trails become an access point that allows humans (as non-nature) to enter ‘real’ nature spaces without damaging them. It is also important to note that not only the trails, but the surrounding wilderness too is heavily managed to maintain such a natural or wild appearance.

Before each tour, students visiting Ballona receive a little blue book titled “Birds of the Ballona Wetlands.” The book opens with the following:

“Each Fall, millions of birds fly south to the marshes that dot the coast of Southern California. They come looking for warmer weather and places to eat, rest and perhaps, spend the winter. Right in the middle of our city there are still wild places where you can see these birds. When you visit these areas, look and listen closely. If you take a bird’s-eye view, you will discover a neighborhood as busy as your own”

The booklet (produced by LAAS and sister organization the Santa Monica Bay Audubon Society) thus invokes the idea of wild space as something to visit, further framing it as the only place where species such as migrating birds may be found. This poetic introduction is of course designed to evoke an emotional response from the reader, but is also indicative of the persistence of settler colonial standards of wilderness and the kinds of sincere nature places and experiences these may ignore.



Figure 7: Ballona Wetlands Ecological Reserve main entry

Indeed, visiting the wetlands, one does get the impression of being in a wide open, unpopulated, real nature space on the other side of a frontier-like barrier, reminiscent of settler colonial wilderness ideologies. The fence, decorated with iron-work silhouettes of herons and coyotes, is peppered with signs indicating the landscape on the other side is a kind of no-man's-land. Security cameras face outwards towards the parking lot, and there are no signs on the interior side of the gate. There are also no resources for human use (drinking fountains, restrooms, etc.), and the main gate is padlocked outside of authorized tours and events. These objects and signs inform visitors that only certain people and certain actions are allowed, and many others



prohibited, in this space *because* it is ‘real’ nature and must be protected. Settler colonial wilderness values remove human presence in order to preserve the land as wilderness and real nature. One sign describes the prohibited activities: “Closed to public entry; no littering or dumping; no unauthorized vehicle use; no fires; no camping; dogs prohibited.” These limitations are common in regulated spaces, even those designed for public use. In the city, not only indigenous presence but also the layered stories of development and settlement are masked to create pockets of authentic nature, driven by a settler nostalgia for wilderness.

Here, causality is multidirectional - bestowed meanings and consequent actions create a particular perception and use of landscape, whose design and management in turn reinforces these meanings and actions. In spaces like the Ballona Wetlands, we can think about the meaning that is ascribed to fenced-in or off-limits nature places, and how that speaks to a sense of place, or the “ways in which citizens of the earth constitute their landscapes and take themselves to be connected to them (Basso 1996, 106). That is, fencing off the wetlands and referring to them as “precarious, fragile, and the last wetlands” connects people to them paradoxically through themes of *disconnect* and separation. The reality however, is that places like the Ballona Wetlands are urban ecosystems in the process of evolving; they are neither the ‘real’ wilderness of Yellowstone, nor the ‘simulacra’ of urban parks, but rather are a new hybrid of ecologically and socially significant wild landscapes.<sup>39</sup> Politically, places like Ballona in urban landscapes take on an outsized meaning:

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<sup>39</sup> Here, I use the term “wild” specifically to refer to the undisciplined, dynamic, and unpredictable characteristics of nature. Even in urban parks we see this wildness act out and be consistently and intentionally reigned in by park

“it’s as if, in the concrete sprawl of the L.A. metropolis, where almost every view is owned and fistfights erupt over beach access, any swath of undeveloped land takes on an outsized significance. It becomes a place to project all of our hopes...” (Mernit 2015)

***Kenneth Hahn SRA: Unaltered yet proximate***

At Kenneth Hahn State Recreation Area in the Baldwin Hills, the design and management of the space is more nuanced. The site became a park several years after the failure of the municipal reservoir dam just before Christmas in 1963. An article in a community newspaper described the transformation from failed dam to park as “the transformation of the barren rustic landscape into the bucolic Baldwin Hills” (Pleasant 2013). And yet, this same landscape is described as the last remaining coastal sage scrub habitat in LA County, as if it has remained untouched for millennia. In a pamphlet handed out to all tour participants at Kenneth Hahn, the introduction describes how “coastal sage scrub used to cover vast expanses of Los Angeles, but urban development has reduced it to only a fraction of its original distribution. The Baldwin Hills represent the largest intact portion of this plant community in the Los Angeles Basin” (LAAS n.d.). The fact that it remains “intact” is not only central to environmental education efforts that occur in the park, but is also critical in securing environment-related restoration and education grants and funding.

Funding sources for non-profit programs and organizations like the Baldwin Hills Conservancy, the LA Audubon Society, and Wildwoods Foundation are dependent on corporations trying to ‘go green’ such as Southern California Edison, The Southern California Gas Company, and Sony

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management activities like mowing, weeding, using pesticides, and generally restraining and retraining nature to our own desire.

Pictures (conveniently headquartered just a stone's throw away in Culver City, about 1 mile from the wetlands), as well as government grants from State Parks, Department of Fish and Wildlife, and the National Fish and Wildlife Foundation. Corporate greening largely takes the shape of sustainability initiatives designed to “protect the environment,” prioritizing funding projects like restoration, urban greening, and beach cleanups (Sony 2018). Government structures fund projects that seek to “sustain, restore, and enhance” the environment, with a special emphasis on biodiversity and conservation (NFWF 2018). As LAAS Development Director Carol Babeli describes when it comes to getting grant funding, “the curriculum we use relies on having somewhat of an abundance of nature that we can call on. It’s all about wildlife, geography, geology, soil, water, air, and these locations allows us to call all of these elements out and showcase them in a way we couldn’t do in a soccer field.” Without a “real” landscape in which to situate outdoor education programs, in the eyes of program leadership, the program risks being perceived as less authentic and less impactful. Further, because such programs speak to funders’ interest in supporting underserved communities, situating rich NGSS-based curriculum in places with an “abundance of nature” that are also in participating students’ communities “is really valuable and grants look for that.” The below plaque, located at the top of the park at “the bowl,” accordingly describes the setting as follows:

“The Baldwin Hills are among the last large swaths of natural open space left in Los Angeles County. Rising 500 feet above the Los Angeles Basin floor and visible for many miles, the hills are an oasis in the heart of one of the most densely populated areas in California. In the midst of roads and neighborhoods, oil derricks and pipelines, traffic and concrete, the Baldwin Hills represent the power of nature to endure, providing a source of refuge, replenishment and quiet inspiration”



Figure 8: “Urban Wilderness” plaque at Kenneth Hahn State Recreation Area

Land management at Kenneth Hahn, and its role in creating “real” nature, or “simulacra” as birder Larry Allen once called it, can be found in diverse forms (interview). Unlike at Ballona, the land management practices are much more visible, as they are actively working to improve park facilities for users, as well as native habitat for wildlife. Politically, Kenneth Hahn is frequently framed as being part of the Baldwin Hills parklands, lands connected to but outside of the park and which are where the preponderance of “untouched” wilderness spaces lie. To further narratives of the value of untouched wilderness spaces, in proposing park initiatives stakeholders emphasize this relationship. In the Park to Playa Feasibility Study and Wayfinding Plan produced by Mountains Recreation and Conservation Authority (MRCA), the landscape is described as “the last large open space remaining within urbanized Los Angeles County... the coastal sage scrub vegetation features areas of valuable natural habitat for California native flora and fauna and well as space for passive and active recreation for community enjoyment” (Alta 2011).

Emphasizing “intact” open space, accessible to most Angelenos due to its location in the heart of urbanized LA County, the narrative and resulting management of the Baldwin Hills manifest two key aspects of “real” nature.

In a brochure on the Baldwin Hills (KHSRA 2001), a page called “The Baldwin Hills: A Surprising Natural Oasis” describes the location as follows:

“In the heart of urban Los Angeles, tucked in canyons you might never have noticed, a natural jewel is waiting to be discovered. High on a hilltop the scent of damp sagebrush fills the early spring air. A gray fox saunters by below, making a half-hearted move toward a young desert cottontail under a bush. The rabbit bolts, and the fox moves on, settling for a nibble of berries and a juicy beetle for dessert. The flat buzz of an unseen bird competes with the musical overtures of a wren and a song sparrow, and the chorus is occasionally punctuated by a California quail’s ‘chi-CA-go!’ (or is it ‘pa-COI-ma!’?) call. This hardly seems like a scene from the middle of the Los Angeles Basin, but all of this and more awaits the visitor to the Baldwin Hills.”

This romantic description glosses over the ways in which this park is heavily managed and maintained to create and/or preserve this setting, and it doesn’t mention the hum of the power line towers, joggers listening to loud music, or cars racing at 60 mph along La Cienega Blvd at the base of the hill. In the dozens of times I’ve been to the park, I’ve never seen a quail or a fox, though I may have seen the remains of one or two cottontails eaten by the increasingly present coyotes (Nextdoor 2015).

The backside of the free Trail Map that visitors receive upon entering the park offers:

“History of the Park: The Baldwin Hills area unique part of the Los Angeles County landscape, rising from the middle of an otherwise flat urban basin. Views of the San Gabriela and Santa Monica Mountains, Pacific coast and all of the Santa Monica Bay out to Catalina Island are available from vista points along the hiking trails. The long ridge lines are easily recognizable from throughout the Los Angeles Basin, and provide

dramatic panoramic views of the City of Angels. Despite years of urban and industrial development, the Hills retain a number of intact areas of Southern California’s unique coastal sage scrub vegetation. They are still home to hundreds of native plants and animals, providing important habitat to many wildlife that are unable to survive in the surrounding lowlands”

This narrative effectively erases any human history, beneficial or otherwise, from the landscape, creating a narrative of a “true” nature space that survives “despite years of urban and industrial development,” notably a 400-acre oil field sitting beneath and around the park. Applying Waldie’s suggestion, to de-colonize urban nature narratives we need to be “aware in the nature we’ve made, and alive to the results of putting in the landscape all kinds of people, including working people, immigrant people, undocumented people, and some people who may never form a moral imagination [sense of place] at all” (2014, 101).



Figure 9: Rendering of the One Big Park, Mia Lehrer + Associates

Interestingly, even though the intent is to leave nature as ‘untouched’ as possible, significant efforts at managing the space will be implemented to ensure that eventuality. In the One Big Park

Master Plan (OBPMP), drafted by noted landscape architecture firm Mia Lehrer + Associates, the first management goal is the long-term “sustainability” of all park resources, followed by “protection of natural lands” (BHC 2002, 67). This is a significant difference from more traditional park management priorities that center around maintenance of lawns, restrooms, and other park facilities.<sup>40</sup> Again reflecting the traits of “real” nature, other management goals include “open space areas” where “irrigation shall be managed to protect natural habitat areas and the native wildlife populations” and “public access”, including ADA-compliant trails (BHC 2002). This plan even includes a “Wilderness Group Camping Site” as part of this very urban park. Along with the eviction of people living in the Ballona wetlands, such projects highlight the paradoxical ways wilderness is invoked as a space where people can visit to reconnect with themselves and nature, but not a place to dwell. This is all still in the planning stages, so how these management practices will be enacted, considering the varied stakeholders and jurisdictions from State Parks to oil companies to private residences, remains to be seen. The OBPMP document dates from May 2002 - though progress has been made with trails and trailheads, and the opening of the Stoneview Nature Center in Blair Hills, the park is far from completion.

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<sup>40</sup> Importantly, restoration as a politically loaded way to manage and improve nature is necessary to creating sustainable park spaces that incorporate natural lands. That is, park managers increasingly seek to restore “degraded” landscapes with native and drought-tolerant plants to slowly merge the ecological value of native plants, with the social value of recreational space.

## **Wilderness, indigeneity, & authenticity**

### ***Learning in and about “real” nature***

The ways in which urban nature is represented discursively and practically managed to be “real” are critically important to how people learn about nature.<sup>41</sup> Geographer David Rossiter (2004) argues that ideas of pristine nature appeal to city-dwellers, and that these ideas can be tied up in questions of regional identity. In the case of California, and Los Angeles in particular, the relatively young and dynamic city’s identity is enhanced by the ability for residents to go snowboarding in the snow-capped San Bernardino Mountains and surfing in the Pacific in the same day. The appeal of “pristine” or “real” nature in close proximity to intensely modern urban living is undeniable. Importantly though, this type of ‘protected’ way of seeing and experiencing nature, where people are mostly separate from the landscape, eschews the more mundane and common nature experiences had by city-dwellers (see Cronon 1996). Thus, when environmental education groups take low-income minority kids to the wetlands, they are at once (albeit unwittingly) reinforcing the idea that nature is something separate from human lives, and secondarily that the kids’ own experiences with nature have less value than being in “real” nature.

Rather than exploring nature in their neighborhoods and schoolyards, students are loaded onto busses for up to an hour’s drive (though the distance is short, LA traffic is notorious) to the Wetlands or Kenneth Hahn to experience “real” nature. Rather than suggesting they explore their

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<sup>41</sup> If we assume that nature is socially constructed (Braun & Castree 2005; Cronon 1996; Haraway 1991; Harvey 1996; Latour 2004), then these social constructs permeate how we see and experience nature, and consequently how we cultivate others into those same ways of seeing and being.



schoolyards or go for walks or put a potted plant on the apartment balcony, at the end of each tour they are informed of the Open Wetlands events one Saturday per month, or told to “come back [to Kenneth Hahn] for a family picnic.” Despite the insufficient acknowledgement of class impediments and alternative community nature interests, and the associated tensions between getting close-but-not-too-close to nature, I suggest there is room for the possibility of connecting to nature on a much more individual, visceral, and integrated way.

### *Restoration*

John Muir is widely acknowledged as a founding father of our National Parks. His vision for wilderness and parks was largely a product of his time, deeply influenced both by transcendentalism and the settler colonial society of which he was part. Fundamentally, he thought access to wilderness was necessary for our physical and spiritual well-being, writing “thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that the wilderness is a necessity; and that mountain parks and reservations are useful not just as fountains of timber and irrigation waters, but as fountains of life” (Muir 1901, 3). Muir was a preservationist, but “his goal of preserving nature exactly as it was in a specific moment of time is not only impossible but can be deeply harmful to ecosystems” (MacDonald 2014, 64). In many ways, restoration efforts are closely related to this kind of preservation ethic. Frequently, restoration ecologists are tasked with returning a landscape to an arbitrarily chosen point in time, without acknowledging how that landscape itself shifts and changes. According to historical ecologist (and former President of the Los Angeles Audubon Society) Travis Longcore, the difficulty in properly designing a restoration project is

“how to get people to understand and depict ephemerality and things that change over time.”

That is, some ecosystems are *by nature* changeable and shifting.

### *Ballona*

Restoration and settler colonial narratives can often go hand in hand. On the homepage of the Ballona Restoration website centralizing information about the Ballona wetlands restoration project, one section reads:

“Connecting Communities to Nature: In the heart of the Los Angeles coast, between a busy international airport, dense commercial corridors, tourist-packed beaches and marinas, and quiet residential communities, there is a pause. A pause in the concrete landscape. A pause in the city’s hubbub. A pause in the form of a vast open space: a creek surrounded by flat, empty lands. A rare sight on our urban coast”

This description of the Ballona Wetlands complicates the language of settler colonial wilderness ideologies – empty lands; vast open space; a rare sight – by situating it within a highly developed urban landscape. The urban transformation of these ideologies takes them past the black-and-white of city versus nature, towards a patchwork approach where the wilder nature spaces become necessary breaks or gaps between the pieces of the city. It thereby paves the way for nature protection and restoration efforts, and their importance to urban communities.

Valuing wilderness via moralizing themes around restoration also exist in the practice of environmental education. For example, a central feature of Ballona tours is the “Restoration Station.” This is one of the 4 station stops for students at Ballona, and one which receives the most enthusiasm from students. They get to go off the main trail, don gloves, and step in the dirt and mud to pull up ice-plant. Once shown how, the students go at it with zeal, competing with

each other on who can pull the largest chunk of weeds in one go. The act of restoring develops a physical bond to the landscape and highlights the power of the individual in making a difference. Land Manager Brody remarked that restoring and improving the wetlands would be advantageous in educating people about the reserve, and “get people in and feeling it.” While a valuable way for people to experience and connect with nature, the underlying goals of restoration are relatively narrow and risk occluding alternative conceptualizations of the landscape and how to interact with it. What makes these efforts distinctly settler colonial, rather than solely an effect of nature-culture dualisms and Christian dominion beliefs, is the nostalgia for wilderness spaces in cities that were once part of an unclaimed frontier, as well as the erasure of indigenous history and presence on the very lands deemed to be authentic nature.

At Ballona, restoration is a powerful and fraught word. Friends of Ballona, the other main non-profit organization working out of the wetlands, is driven in great part by volunteer restoration efforts; their mission is one of “protecting and restoring the Ballona Wetlands for over 39 years with the help of more than 95,000 volunteers.” For Longcore, terms like “native” and “restoring the wetlands” are meaningless. In an early fieldwork interview, he remarked “if humans brought it within the last couple hundred years then it’s not going to be native in our lifetimes. That’s a geological scale thing. He told me “we can’t go home again, it’s not going to be like it was,” so restoration must instead identify a target species, and then restore the system so that it works for that species. Many scientists and certainly politicians imagine there is a restoration point, a time to which a landscape must be restore, and that time is one of native plants and animals, (including native peoples) before colonization. However such a point doesn’t really exist.

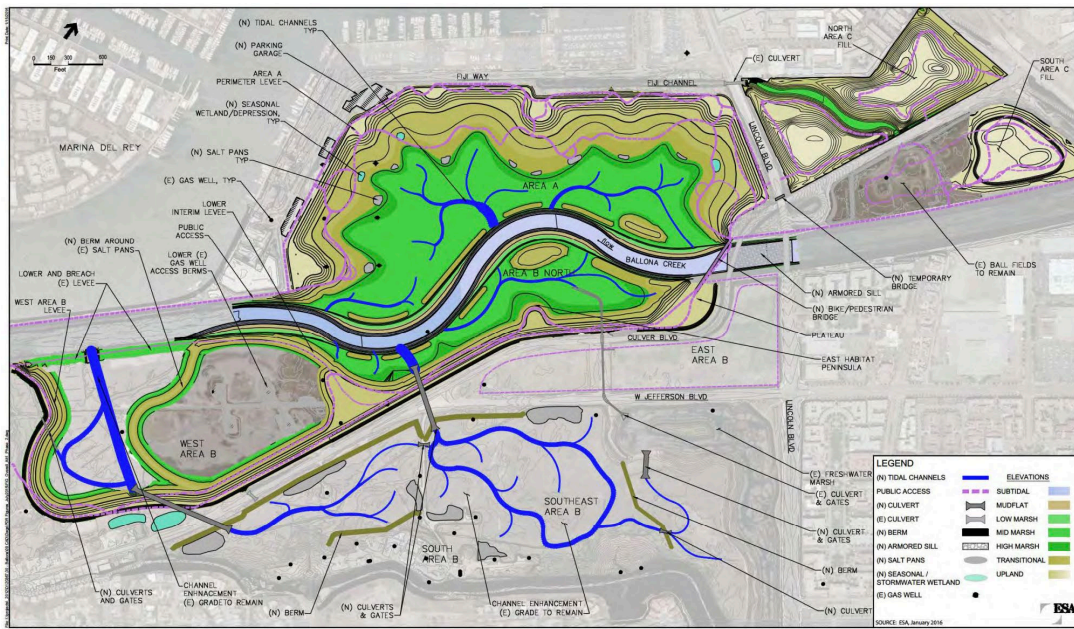


Figure 10: La Ballona – 1900 map & 2018 restoration plan  
 A) USGS Topographic map of La Ballona map 1900; B) Ballona Wetlands Restoration Project alternative 1, USFWS DEIR, 2017

Looking to Ballona, The U.S. Army Corps of Engineers released the current Draft

Environmental Impact Report (DEIR) in November of 2017, with the public comments period

extended by popular request to February 5 2018. The nearly 1300-page document makes 4 proposals for the restoration (or transformation, as some opponents see it) of the Wetlands - full tidal restoration, partially restored sinuous creek, levee culverts with oxbow, or no restoration. The proposals reflect an increasingly integrative view of restoration that benefits both wildlife and people, with option 1 - full tidal restoration - being privileged. Full tidal restoration would result in the removal of the Ballona Creek armored levees and recreation of a meandering water path, installation of earthen berms and levees, and trails and bike paths added on top of the levees to allow for designated pedestrian access to view the landscape and visit education installations scattered throughout.

Many stakeholders are swayed by the aesthetic presentation and wetland ideal presented in this option. Interestingly, though it is tempting to say that this approach reflects rigid settler colonial nature values, in fact it is a progressive, and integrative human-nature landscape that is envisioned. The plans for the revitalization of the lower LA River (inclusive of a watershed education project) also use similar language: “Restoration must prioritize and promote inclusivity, health and equity, and climate resilience. In short—Lower Los Angeles River revitalization must be a model of equitable redevelopment” (LLARP 2017). In these contexts, restoration is discursively more about improvement than a total return to a prior point in time. It is therefore the more strictly ecological conservation organizations like LAAS, desiring to keep such wild spaces separate for the benefit of wildlife (except for guided tours), that seem to subscribe to settler colonial perspectives. This paradox is made all the more surprising because it is these same programs that seek to foster human-nature connections and relationships through a sense of place. That is, sense of place is predicated on scientific and ecological awareness of

wilderness rather than emotion and personal experience, as demonstrated in school group tours in woodland landscapes. It unintentionally reinforces the distancing of people from nature, an outcome directly counter to the goals they seek.

Interestingly, among the many alternatives that were not pursued was the “19<sup>th</sup> century wetlands” alternative. The DEIR argues that

“to return conditions to a seasonally closed lagoon would require modification of hydrological conditions within the Ballona Reserve and the larger Ballona Creek watershed, including removal of the Ballona Creek Flood Control Channel and the Marina del Rey harbor, to cut new channels from Fisherman’s Village and Del Rey Lagoon, and to alter the highly modified nature of the watershed that supports the Ballona Reserve today. Returning conditions within the Ballona Reserve to those of 200 years ago would require similar amounts of earthwork within the Ballona Reserve as needed for Alternative 1 and substantial additional earthwork outside the Ballona Reserve to connect the Ballona Creek Channel to the ocean” (DEIR 2017, 2-235)

And yet, it is this very ecology that a restoration focused on historical ecology rather than an arbitrary point in time, or a reproduction of a different wetland system, would endeavor to reach.

It is therefore accurate for restoration ecologist Margot Griswold (and President of the LAAS Board) to remark that the “Ballona has a little different history than you might hear if you’re listening to proponents of the current restoration plan... It’s a creation of what they want to do.”

Regarding this debate, the position of the place-based Los Angeles Audubon Society is at odds with The Bay Foundation, California Department of Fish & Wildlife, the Coastal Conservancy,

and the Friends of Ballona - major environmental groups who support the plan.<sup>42</sup> For Dr. Griswold, restoration as a political act is “more a creation” than a restoration.<sup>43</sup> That is, despite being defined as ‘returning something to a historic situation,’ in fact the selection of the restoration point in time is determined by stakeholder interests and broader urban greening narratives.<sup>44</sup> Those that support restoration argue that it will allow state taxpayers to visit a ‘wild’ landscape, albeit one managed by staff with trails and a parking garage. Opponents respond by saying that restoration would involve decimation of species that have made even this “degraded habitat” their own, not to mention unnecessary development of boardwalks and access points that would further reduce the acreage of the setting. This tension hints at the precarity of a settler colonial approach to urban wilderness spaces as pauses or breaks scattered within a profoundly urbanized and settled landscape.

They are therefore against the plan due to the significant impact on wildlife habitat, the damage that would occur with increased pedestrian access, and the plan’s reliance on a flawed understanding of the historical ecology of the landscape. That is, option 1 - full tidal restoration -

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<sup>42</sup> this plan follows an earlier failed attempt by the Annenberg Foundation to acquire degraded upland habitat in order to install a nature education and pet adoption center. in my fieldwork year there was much hushed conversation among LAAS staff about the inappropriate nature of such a plan for ‘proper’ restoration and the future of the wetlands (being of the opinion that buffer zones between the wild heart of the wetlands and the developed edges needed to be preserved with limited foot traffic, not built upon and adding trails and paths). Eventually, the Annenberg project failed due to significant community pushback

<sup>43</sup> In the case of the controversy over the Ballona wetlands restoration, Longcore argues that “the current proposal would create a tidal connection similar to that found one to two thousand years ago when the wetland area was completely open to the ocean all year... instead of the conditions in the 1800s (and which would be supported by the smaller watershed today) in which the tidal connection to the ocean was much more limited and seasonal” (Longcore in Masters 2012). Similarly, Madrona Marsh manager Tracy Drake was equally critical of restoration, arguing that “that point in time doesn’t exist anymore.”

is based on fully tidal wetland ecologies found in the San Francisco bay area, whereas the Ballona wetlands is historically a seasonally tidal wetland. Further, to properly restore such a variable habitat, the LAAS feels that focusing on a key species, rather than an arbitrary restoration date, would be most effective in restoring the “ecological function” of the wetlands as desired by the DEIR. Though still refining its position, the LAAS has prepared a comment letter on the DEIR and engaged a lawyer for representation if needed; option 3 is therefore preferred by the organization for its limited impact on the existing wetland. As a Board member of the LAAS, I have a privileged view into the position of the organization. Personally, if indeed no restoration plan is 100% historically accurate, I find value in an approach that integrates ecological function (seasonally tidal) with social benefit (boardwalks for visitors) for a richer urban ecology, further blurring the boundaries between what is and is not wilderness, and increasing the likelihood of cultural environmental stewardship through experiential ecological knowledge.

*Kenneth Hahn*

At Kenneth Hahn, the value of native plants lies in the fact that they “provide important habitat for animals that depend on coastal scrub species as well as an important educational opportunity for the many human visitors” (BHC 2002, 29). Restoration is therefore considered an important component in achieving the park goals of balancing “active recreation, natural habitat and community facilities” (BHC 2002, 2). As a form of land management, the OBPMP suggests restoration in the Baldwin Hills be focused on habitat corridors, a managed fire regime, removal of non-native plants, and public education among others. In practice, these efforts are occurring at a volunteer level, and are integrated into each park improvement. And, beyond improving the



natural landscape for native wildlife, a key result of volunteer restoration work is the outreach and involvement of the surrounding neighborhoods and community, again in order to cultivate environmental stewards and an environmental sense of place.

In order to emphasize community, in a place where wildlands and traditional park recreation intersect, restoration efforts tend towards a more integrative, hybrid approach. David McNeill, Chair of the Baldwin Hills Conservancy, explained that their plan for the development of the Baldwin Hills open space is 1/3 cultural, 1/3 passive, and 1/3 active. Habitat restoration is part of the “1/3 passive” but with a focus on including human use in those passive efforts. He commented that “people really want to get into those spaces. So the best you can do is create little areas they can get into it, as opposed to just saying nowhere you can get into it, and then they just find a way;” the result is a blended nature/culture/recreation type of development. Indeed, natural space users will always find a way to access the spaces they’re interested in. Certainly, at the Overlook and Kenneth Hahn, users often made their own trails through the landscape. At Ballona, users not attending a formal program were considered trespassing; on more than one occasion I was witness to casual visitors walking a dog or taking a lunch break being told to leave. And yet they continue to come. There is therefore something to be said for a more ecologically and socially integrated approach to restoration, despite the potentially negative impacts to ‘pure’ habitat restoration.

The LAAS Facebook page highlights the efforts of various volunteer groups from college students to companies in restoring the Baldwin Hills landscape, particularly at Kenneth Hahn and the Baldwin Hills Scenic Overlook. Volunteers from companies and alumni groups in matching

t-shirts pose with tools in hand. I've participated as a Yale alumna in group activities that involve weeding invasives and planting native plants in an effort to "restore" the landscape. Students participating in the LA Audubon's Greenhouse Restoration Leader Program at Dorsey High School conduct much of their work in restoration at Kenneth Hahn or Baldwin Hills Scenic Overlook. Both sites have greenhouses wherein program organizers and volunteers store restoration equipment and young plants. And, the restoration work does have worth - according to the program director, many of the restoration fellows return to volunteer, some even inquiring about jobs, during college breaks. As Griswold remarked "to me, that's the result onward, the community involvement, coming back to the community, and then reaching out from there." Restoration then is an important tool for assisting in the management of nature spaces in the service of desired outcomes, and for cultivating community interest and sense of place.



Figure 11: UCLA volunteers working to restore the Baldwin Hills Scenic Overlook  
(source: Los Angeles Audubon Society website)

## **Native plants**

### ***What it means to be “native”***

Native is a loaded term, though it is primarily used in reference to indigenous people and indigenous plants (animals instead are framed through their reliance on native plants for survival). I will discuss the relationship between indigeneity and native species in the coming section; here though I want to examine how native plants are defined particularly in relation to invasive, non-native, and exotic species (Cattelino 2017). Understanding this framework aids in analyzing the popularity of discourses and practices around invasive removal, and the monetization and incentivizing of native plants. Indeed, major environmental organizations and projects increasingly emphasize the importance of native plants in any development or restoration effort.

The Ballona Wetlands Restoration Project, and the desire to “stop the rampant march of invasive species” frames native plants as the centerpiece of restoration (Patrick Tyrell of the Friends of Ballona in Mazza 2017). The Baldwin Hills Parklands are described as invaluable for the patches of *native* coastal scrub habitat. It is likely all based on a definition of “native” such as that provided by the California Native Plant Society: “Our native plants grew here prior to European contact. California's native plants evolved here over a very long period and are the plants which the first Californians knew and depended on for their livelihood” (CNPS 2018). Demonstrating the co-production of wilderness and indigeneity, like indigenous histories, native plants make a landscape more “real,” particularly in opposition to invasive or non-native species.

At the recently opened Stoneview Nature Center in the Baldwin Hills, an interpretive sign explains the difference between native, California-friendly, and invasive. The language here is more moderate, advocating the aesthetic benefits of native or California-friendly plants by focusing on community and sense of place. Signage describes how invasive plants “harm natural ecosystems, cause expenses to farmers, and are a headache to remove from neighborhood yards.” It then remarks that the use of California friendly and native plants at the Nature Center demonstrates “the beauty and benefit of gardening with plants compatible with our own Southern California homes. Together, we can watch how the landscape of this site continues to grow and evolve over time.” Terms like “our homes,” “together,” and “grow over time” tentatively create a sense of place for the community through native plants, while simultaneously papering over inequality and difference. This is likely why many of opening events for nature areas, trailheads, and the like that I attended involved some community activity to create visceral, embodied ties to the place. As one informant told me, learning about and planting native plants made her want to stay in LA, “so I can watch them grow.”



Figure 12: “Native, California Friendly, Or Invasive?” Sign at Stoneview Nature Center

As BHC executive director David McNeill remarked that “we have troubles with using natives just because they’re native,” recognizing that the valuation of natives is in many ways constructed to tell a particular story about a place. Still, the idea of belonging to the landscape, of “being there” prior to European contact is the baseline for most definitions of native plants, and consequently for most restoration projects. When I asked informants how they defined native, their definitions generally reflected how arbitrary and nebulous the term is when using such

chronological baselines, generally commenting that native plants “belong” here or are “from here.” When asked their importance to the ecosystem, I received a range of answers pointing to how native plants support biodiversity, offer humans a sense of place, maintain ecological balance, or provide habitat. One interviewee was able to blend all of these answers by commenting that “native plants will drive life around them... sure certain [non-native] plants do that but this is how this area should be, this is how it was before” (Brent). One teacher directly connected native plants to indigenous peoples, describing how on the tour they felt they “experienced a perspective on native plants shared by the Tongva hundreds of years ago.” Another raved about how they “learned about native plants and animals, and the Tongva native American history and interaction with the wetlands, and helped to remove invasive ice plants,” all in the same breath. In these narratives, native plants, native peoples, and pre-history become inextricably linked, actively also placing Tongva in the pants, with the native plant brethren. Intellectually, some scholars (Mastnak et al. 2014) consider the value of native plants as an act of botanical decolonization, though Cattelino (2017) critiques this analysis as drawing a facile analogy between indigenous peoples and native species.

As such, native plants hold inordinate value in the urban greening and environmental education sectors and continue to echo settler colonial narratives around “real” nature and indigeneity. A pamphlet on Kenneth Hahn describes how “plants in this community were an important part of Native American culture, and the Baldwin Hills serves as an important refuge for wildlife species that can’t live in the surrounding highly urban areas.” In the introductory session for docent training at Ballona, lead educator Cindy explained that “when the cattle ranching came in, grasses were introduced that were European in origin, and those grasses took over a lot of our

native plants.” This type of narrative glosses over the role that Tongva and Gabrieleno peoples historically had in altering the landscape and the flora and fauna themselves. It implies that any alterations caused by them were minimal or were done in harmony with native plants.<sup>45</sup>

### ***Removing invasive species***

Today in the urban setting, planting native plants almost always necessitates the removal of invasive or non-native weeds. Indeed, in the environmental education programs I observed, the removal of invasives was just as critical as the emphasis on native plants to processes of place-making, and consequently the experience and moral imperatives tied up in urban environmental learning and stewardship. In fact, the valorization of natives is what enabled the removal of invasives, or weeds, both by volunteers and in much larger restoration projects like those at the Ballona Wetlands and the LA River. As Cattelino reminds us, the equilibrium purported to result from invasive removal is fantasy, and thus “maintaining a ‘native’ state requires active and ongoing invasive species management” (2015, 132). Historical ecologists argue this point, yet maintain their emphasis on the importance of restoring native plant communities in the face of the human-induced (excepting indigenous peoples) onslaught of invasives. While the Ballona DEIR does not define the term “native,” it does identify “invasive” plants as “those identified in the California Native Plant Society, Los Angeles – Santa Monica Mountains Chapter handbook entitled “Recommended List of Native Plants for Landscaping in the Santa Monica Mountains”; those species listed by the California Invasive Plant Council on any of its watch lists; and those

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<sup>45</sup> Krech has made a controversial counter-argument that native North Americans extensively altered the landscape, and not always wisely (2000).

otherwise identified by CDFW or the U.S. Fish and Wildlife Service (USFWS). Invasive, nonnative plant species often are referred to as “weeds” (DEIR). Calling non-native plants “weeds” further enables their removal, minimizing any feelings of loss because weeds are commonly seen as negative, despite any ecosystem services they might provide.

As a State Recreation Area, a significant percentage of Kenneth Hahn land is for recreational use - playgrounds, open fields, picnic areas, trails, etc. Amidst the 400 acres though, is a Native Plant and Wildlife Garden. This space, opened in 2006, replaced non-natives and invasive plants, with the reasoning that “though they may look lush and green to us, non-native plants don’t provide enough food or shelter for wildlife. In addition, they require a lot more water, fertilizers, and pesticides than do native plants.” This negative portrayal of non-natives is thus framed through narratives of morality and ecological well-being. These narratives can be further situated within the context of biodiversity debates that are particularly heated in Los Angeles, a city where some groups like the Stray Cat Alliance are in fervent support of the animal rights of feral cats, while others like the Urban Wildlands Group (whose founder is also on the Board of the LAAS), argue that stray cats are significantly detrimental to urban biodiversity. As Ursula Heise writes, the various spectra of diversity and species worth saving points to social discomfort and even anxieties, particularly among conservationists, that “nature has been so comprehensively reshaped by humans that it can no longer be conceived as a realm outside human society” (Heise 2016, 132).

A flyer available at county recreation areas like Kenneth Hahn echoes this narrative, equating invasives, non-natives, and weeds. The below weed watch pamphlet explains that plants are said



to “displace native vegetation and greatly reduce wildlife diversity. Scientists call these plants ‘wild land weeds’ or ‘invasive plants.’ Invasive plants also fuel wildfires, degrade grazing land, contribute to soil erosion, clog streams and rivers, and increase the risk of flooding”.<sup>46</sup> The ways in which these plants are detrimental to the environment are seemingly endless. Citizens are advised to keep a cheat sheet in their wallet at all times, avoid purchasing invasives, and remove them when found in one’s yard. The ad further proclaims, “No matter how far you live from natural areas, you can make a difference!”



Figure 13: Weed watch Pamphlet.

<sup>46</sup> The pamphlet is produced by LA and San Gabriel Rivers Watershed Council.

This brochure can be analyzed as an artifact of settler colonial structures embedded with expectations of moral citizenship. Qualifying a species as “native” in a settler colonial society depends on one thing - its presence in the historical record *before* colonization and settlement. That is, what is native is what was here before the first European explorers and colonists reached the Americas. Of course, this in itself is problematic because it implies that what came *before* was timeless, unchanging, and importantly, uninhabited. It is based on the premise that before settlers, indigenous people and native species coexisted in a timeless wilderness, and that it is this baseline to which nature must be restored. This settler logic of wilderness enables reclamation narratives, and are intricately tied to ideals around property, indigeneity, and sovereignty. These kinds of communications are emblematic of the paradox of urban wildness – while wilderness is considered to exist outside modern society, it persists in being found throughout the city, necessitating “weed watch” activities to perpetually suppress the wildness of nature.

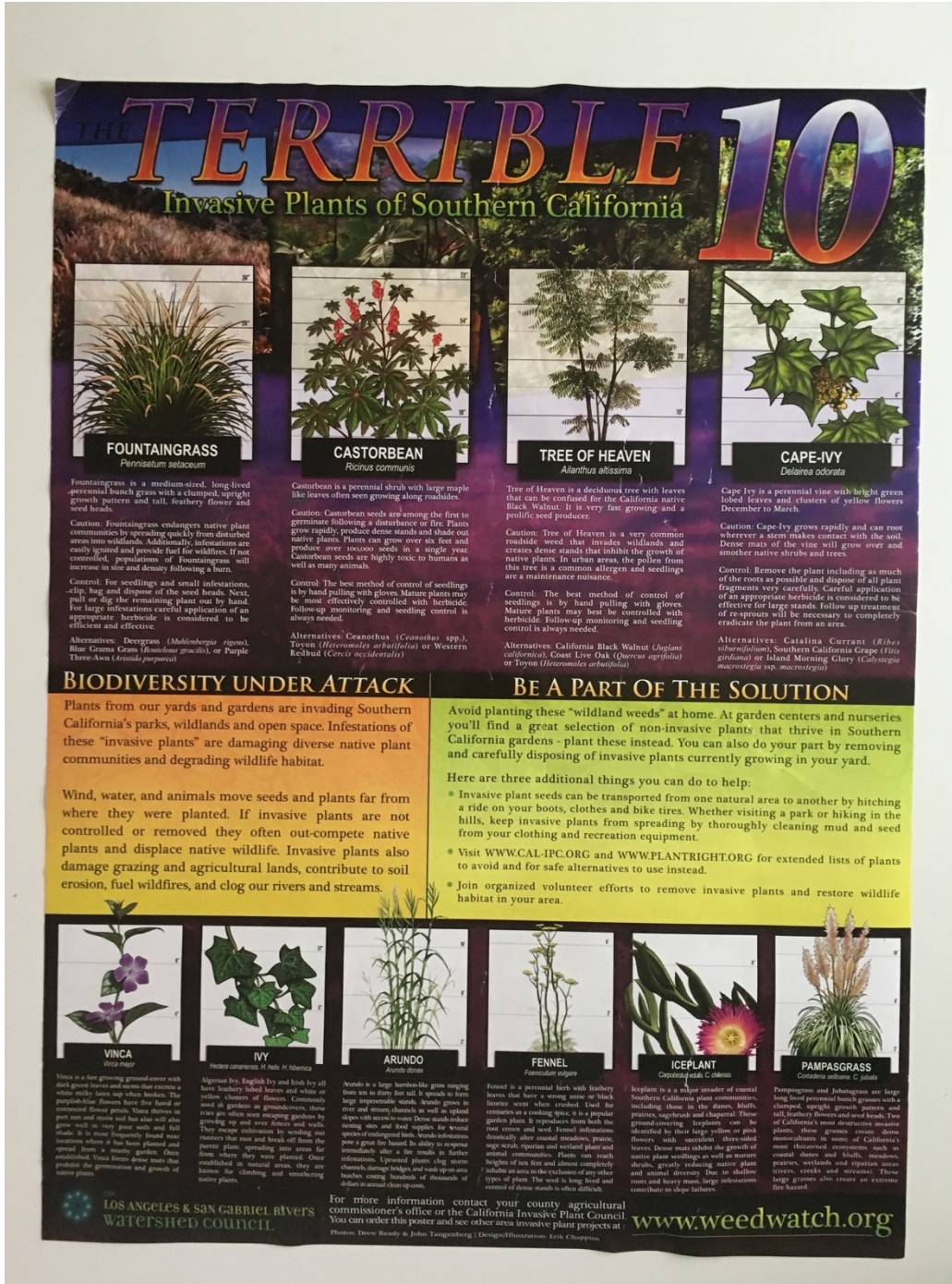


Figure 14: Weed watch "Terrible 10" poster, Kenneth Hahn State Recreation Area.

A poster called "Terrible 10", produced by the LA and San Gabriel Rivers Watershed Council, makes manifest this process of othering, framing non-native plants as an aggressive, invading

pest-like force bent on destroying native habitat. People are framed as the source of the problem, and people are also the solution. The section reads:

“BIODIVERSITY UNDER *ATTACK*: Plants from our yards and gardens are invading Southern California’s parks, wildlands and open space. Infestations of these ‘invasive plants’ are damaging diverse native plant communities and degrading wildlife habitat. Wind, water and animals move seeds and plants far from where they were planted. If invasive plants are not controlled or removed they often out-compete native plants and displace native wildlife. Invasive plants also damage grazing and agricultural lands, contribute to soil erosion, fuel wildfires, and clog our rivers and streams.”

The language is intentionally strong; key words include invasive, infestation, displace, damage. *Invasive* plants damage *native* plants, thereby constructing a binary equating invasive with non-native, making both a threat to native plants.

The “STOP THE INVASION” phrasing on the Weedwatch flyer calls to mind current nationalist desires seeking in a similar way to bar immigration and migration, not of invasive plants, but of people deemed non-native to the region and country. It is ironic, given that this is country and certainly Los Angeles in particular is a fundamentally immigrant city kept alive through the labor of immigrants. And yet, through processes of indigenous erasure and settler anchoring, citizens begin to see themselves as native and thus must resist any further ‘encroachment’. As Reardon and TallBear (2012) argue, Scholars have shown how invasive species management is intimately linked to “a pervasive socio-political nativism against immigrants and aliens” (Cattelino 2017, 129). Indeed, Jean and John Comaroff’s 2001 article on invasive plants in postcolonial South Africa, they suggest that anxieties over invasive plants reflect a shift in how national identity and belonging are defined.

The history of Los Angeles as Tongva homeland, occupied first by Spanish and then Anglo-European settlers further complicates the matter. Indigenous erasure first occurred with the arrival of Spanish ranchers and missions, starting in 1781 with the founding of El Pueblo de la Reina de Los Angeles by 44 Spanish Mexico pioneers, most of whom were not of Spanish descent (Meares 2018, Masters 2011). Street names and place-names such as Ballona, La Cienega, La Brea, and Santa Monica are persistent reminders of this history. The region was under Spanish rule for 50 years, then under Mexican rule for another 40 until the American acquisition of California with the Treaty of Cahuenga in 1847. Indeed, the “multiple colonialities” of Los Angeles help to explain the ways in which a “settler colonial structure is built on a prior Spanish/Mexican colonial power” (Blackwell 2017, 159). Partly due to this layered history, the Othering of indigenous people and people of color in Los Angeles has been complicated by the city’s character as a transnational hub (Ramirez 2007), inclusive of the estimated 120,000 Oaxacan (Zapotec) Indigenous migrants from Mexico, and Maya from Guatemala (Blackwell 2017).

Here I specifically attend to Latinx people of color because of the facile analogies made between their immigrant presence and the desire to remove “invasive” and “non-native” people and plants.<sup>47</sup> Kearney describes the complicated third space in which these groups live, “ghettoized and marginalized from both mainstream Anglo and Chicano society” (Kearney 2000, 173). More recently, Blackwell offers Critical Latinx Indigeneities as a framework to help elucidate the

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<sup>47</sup> Ironically, in this formulation the “native” people are in fact descendents of white Anglo-European settler colonists (Byrd 2011).

complicated history of multiple indigenous diasporas and colonialisms in Los Angeles. One result of this structure and despite the recruitment of Mexicans for labor, many efforts have persisted to either rid them from the land, or control. Mexicans who remained gained citizenship,<sup>48</sup> but were primarily considered second-class laborers, a legacy of the neocolonialist programs that brought Mexicans (as well as Asians) to America to build the railroads, and work in mining and agriculture in the West (Hondagneu-Sotelo 2000).

This process led to whiteness being tied with ‘real American’ identity, while indigenous, Mexican, and African-Americans were subject to removal, slavery, indentured servitude, or second-class labor force citizenship at best. Their second-class citizenship, elucidated by Pierrette Hondagneu-Sotelo’s work on migration studies, is particularly useful in grappling with nativity and labor as they relate to settler colonialism. Though her focus is on the intersectionality of gender and migration, her discussion of immigrant workers, particularly in the American West, provides valuable insight. In Los Angeles, the nearly all-male crews of Latinx gardeners<sup>49</sup> are ubiquitous. Those who work in my neighborhood drive smaller-sized pick-up trucks loaded with hauling rakes, mowers, blowers, and trashcans, and work in groups of 2 or 3, wearing hats and long-sleeved shirts for sun protection. These “worker-entrepreneurs” (Ramirez and Hondagneu-Sotelo 2009) make a living maintaining the lawns and flowerbeds of an increasingly broad range of classes. Not only in Beverly Hills, but also in middle-class neighborhoods like Culver City and Windsor Hills, can you find groups of Mexican men

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<sup>48</sup> Due to the 1848 Treaty of Guadalupe Hidalgo.

<sup>49</sup> One study estimates 97% of migrant landscape workers are male (Klowden et al. 2005 cite in Ramirez and Hondagneu-Sotelo 2013).

blowing away leaves, trimming hedges, and fertilizing or reseeding sod for lawns nearly every day of the week.

Their presence supports what Hondagneu-Sotelo (2014) describes as the “California dream-escape,” a place where nature has been domesticated into unproductive but beautiful lawns and flower beds. She goes on to explain how, despite Californians’ love of the outdoors and generally progressive environmentally-aware attitudes, they continue to employ Latinx immigrant gardeners to do the heavy lifting of yard maintenance, saving the more leisurely and DIY activities for themselves.<sup>50</sup> And, despite their reliance on these gardeners’ efforts, wealthier (predominantly white) municipalities have simultaneously sought to ban noisy blowers used by Latinx gardeners, indicative of nativist beliefs and subsequent attacks on these outsider groups. Indeed, critics go so far as to link tool use (blowers) to origin (Mexican) to broader cultural stereotypes around cleanliness and productivity, relying on “colonial-era stereotypes of the ‘lazy’ and ‘sleepy Mexican’ and fears of the ‘reconquista’ by Mexican ‘invaders’” (Hondagneu-Sotelo 2014, 111).

While the United States persists as a settler colonial (rather than post-colonial) state, the argument that the management of ‘alien’ nature’ “was to become the raw material of communal rebirth” still applies (Comaroff & Comaroff 2001, 249). By removing invasives, the ecological health of the landscape would be restored, and the practice a tool for social equity by creating

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<sup>50</sup> With the recent mega-drought, these same savvy worker-entrepreneurs adapted, switching from “mow, blow, and go” to replacing Angelenos’ lawns with gravel and succulents, pocketing the City’s lawn removal rebates.

jobs and building up communities. This solution is in response to a growing phobia around foreigners, whether people or plant, and the ways in which they threaten the very fabric (landscape and communities) of the nation. Like Trump describing *all* Mexican migrants (legal or otherwise) as racist and criminal “bad hombres” in the presidential debates, in this optic *all* non-native plants become dangerous invaders, regardless of their actual potential value, or of the fact that ‘native’ is a constructed (not objective) concept.

### ***“Loving the native”***

The preceding sections introduced the ways in which native plants, like the scenic and sprawling grandeur of National Parks, work to cultivate a national identity, albeit in more affective ways (see Spence 1999). As Cattelino describes, “loving the native” as an affective project “enables settler societies [to] embrace native species as a kind of patrimony” (2017, 134). Here though, the embrace of the native goes beyond patrimony. Speaking to the political economy of climate change in the urban setting, the recent boost in valuing native plants is in many ways a practical solution to the economic and social problem of drought. The mega-drought in California provided the financial and environmental catalyst to push the valorization of natives into the public spotlight, leading to the sudden if spotty transformation from the ironic sprawl of green lawns in a landscape commonly thought to be a ‘desert’ (it is in fact more akin to a Mediterranean climate) to one of succulent gardens, native wildflowers, and rock. The drought lasted for 5 years; the state was in a “drought state of emergency” declared by Governor Brown from January 14 2014 to April 17 2017; in 2015 the Governor ordered a 25% statewide reduction



in urban water use.<sup>51</sup> This was the state's first ever mandatory drought restriction. In some rural communities, drinking water had to be trucked in. In the heart of the drought in 2015, the centennial LA Aqueduct, which typically supplies 30% of the city's water was dammed for 6 months, shifting what little Eastern Sierra runoff trickled down the mountains from Los Angeles to Owens Valley. At the time Los Angeles Department of Water and Power (LADWP) Spokeswoman Amanda Parsons said "That's how bad this drought is ... we've never kept the water in the valley before. This is unprecedented" (Morin 2015).

The unprecedented nature of the drought led to a range of initiatives centered around water use, but also enabled tangential environmental desires for native plants and increased community nature involvement to flourish. Returning to Cattelino's "loving the native," this embrace also hints at native species' "capacity to facilitate future flourishing" (2017, 134). Part of what architecture critic Christopher Hawthorne calls the Third Los Angeles, in the city of Los Angeles, Mayor Garcetti's sustainability "pLAN" groups a wide range of goals to make the city more eco-friendly by 2020. For Hawthorne, the First Los Angeles was a prewar city where downtown really was the city center, the Second the era of auto-dystopia and suburban sprawl, similar to Mike Davis' dystopian "fortress L.A." analysis (Davis 1990). This new Third L.A. however is marked by a reaffirmation of public space, public transit, and consequently of green space. In addition to urban greening, events like CicLAvia, now in its 7<sup>th</sup> year, grow in popularity - one

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<sup>51</sup> Indeed, despite water shortages, agriculture (the state's biggest water user) "enjoyed record revenues in 2012, 2013 and 2014 thanks to soaring nut and dairy prices" (Boxall 2017).

writer describes it as inherently “antithetical to the guarded, privatized, auto-carved Los Angeles of lore” (Tuhus-Dubrow, 2015).

“Save-the-drop”, which personifies a water droplet urging residential consumers to cut their water usage and incentivizing this through rain barrel and lawn removal rebates, is one of the water saving campaigns during the recent drought. It also represents a major shift away from the Los Angeles water ethos of old, as when water engineer William Mulholland remarked “There it is. Take it” on the opening on the L.A. aqueduct over 100 years ago.<sup>52</sup> In this new water conservation ethic, homeowners could take a picture of their lawn and provide the square-footage, replace that with low-water and native plants, and receive a rebate check for \$1.75 per square foot.<sup>53</sup> If you weren’t handy in the yard or didn’t have time, companies popped up that would replace your lawn with rocks and a few succulents and pocket the rebate check in the process. A number of paid instructional workshops proliferated (such as those held at the Natural History Museum in 2015), instructing homeowners how to design and maintain “post-lawn” landscaping.

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<sup>52</sup> At the time, Los Angeles was rapidly expanding, quickly outpacing the capacity of the Los Angeles River to supply the city with water. The Los Angeles Department of Water and Power was formed in 1902; its new superintendent Mulholland and other engineers were commissioned to find a solution. They identified the Owens River, about 200 miles away, as a suitable source for Los Angeles water, and proceeded to build an aqueduct to siphon off water from the Owens River Valley. The 233-mile Aqueduct opened in 1913 to Mulholland’s exploitative exclamation. In building the aqueduct, Los Angeles officials and voters alike disregarded both the Valley’s agriculturalists as well as the native Paiute claims to the land (whose livelihood depended on that water). The Aqueduct effectively stole all the water from Owens River, turning Owens Lake into a salt pan.

<sup>53</sup> It is important to note that such efforts are only relevant to and benefit homeowners who have lawns to replace. For renters and low-income communities, it has no impact either on their water conservation awareness, or on their water bills.

Though the mega-drought has “officially” ended, water conservation still remains a buzzword among the political elite and has trickled down to small businesses, the classroom, and the average family, and fits in with broader “urban greening” narratives. More space is consecrated to native and low-water plants at nurseries and home improvement chains like Home Depot. At the Stoneview Nature Center opening in April of this year, an equal emphasis was placed on organic foods and native plants. My own family took advantage of these offers to reduce our water footprint, though we did the labor ourselves. We ripped out as much as we could, and then layered cardboard to kill the crab grass and Bermuda grass, letting it rest for a few weeks or as long as our patience held out, then adding organic mulch. It was not the leisurely DIY gardening activity of the middle class, but rather hard manual labor, that we ironically only had the leisure time to engage in because of our flexible graduate student schedules.

We then researched garden layouts and plant growth habits online before venturing out to native plant nurseries such as Theodore Payne Foundation, C&S Nursery, and the now-defunct Grow Native Nursery at the VA in west Los Angeles. Instead of rocks and succulents, we did native and drought-tolerant plants. For the most part we chose wisely, installing a rain garden and rain barrels, and planting Cleveland sage, blue penstemon, butterfly bush, coastal sage scrub, and California poppy. A comic book style pamphlet made by students in the LAAS Dorsey High School Restoration Leader program colorfully and scientifically illustrates the need to “Kill your lawn!” for the benefit of urban wildlife. Though a lawn in many ways is easier (and certainly involves less weeding!), and annuals are often more colorful and picturesque, I find I have become a bit of a native plant evangelist since I began my fieldwork. Beyond questions of

financial savings or drought responsibility, there is also a level of affective and sometimes arbitrary attachment involved in the production of native vs. invasive debates.



Figure 15: “Kill your lawn” comic book, by Baldwin Hills Greenhouse Program students.

On my first tour, during preliminary fieldwork, I took some of my first fieldnotes as the volunteer docent told 6<sup>th</sup> grade students that “native” means that something “belongs here, is from here” and that native plants are “most comfortable here.” Native-ness then, even more than low-water or drought-tolerant, has become the trendy and even morally correct choice for urban landscaping. Personal landscaping decisions have become imbued with morality. Neighbors shame one another by reporting over-watering; I myself have touted the values of native plants to my neighbor, who replaced her water-thirsty lawn with fake grass. Now that the drought has ended and the lawn rebate monies have dried up, perhaps surprisingly, consumers have not

returned to lawns or other high-water plantings. It is increasingly seen as the “right” thing to do because it saves water, but it is also ecologically appropriate, providing food and shelter to native wildlife, in turn providing people with various ecosystem services from the aesthetic to ground-water replenishment. Such moral imperatives work to anchor settlers’ identities, so they affectively and actively begin to see the land as their own (Cattelino 2015).

Much of the affective valuation of native plants specifically targets homeowners who have the time, money, and space to engage in such projects. While this is certainly a positive influence on the urban greenscape, it also ties environmentalism to property ownership in a way that excludes racialized and non-propertied forms of labor and environmental involvement. Consequently, urban environmentalism all too often remains the domain of relatively affluent, primarily white citizens. Other narratives, uses, and histories of the environment become devalued or overwritten; this becomes particularly problematic for environmental education programs targeting minority/low-income youth. If their stories are not integrated into such initiatives, it can have a negative impact on their long-term involvement. This past January, the LAAS Greenhouse program at Dorsey High School asked student volunteers to participate in a Martin Luther King Jr. Day of Service at Kenneth Hahn to install a shade shelter for the native plants the students would later work to plant as part of Baldwin Hills restoration efforts. It was a staff and student volunteer only event; that Saturday morning, the students were no-shows. A small incident, it could point to the ways in which incentivizing native plants is less relevant for non-minority communities.

## *Authentic indigeneity*

### *Narrating a historical, natural Indian*

In the context of urban America, 'real' green landscapes rely in great part on a narrative of a pre-European point in time where indigeneity and native ecosystems are conflated. These "settler narratives" have a profound impact on the idealized past and imagined future of nature, and what 'real nature' looks and feels like. Indeed, in applying settler colonial logics to the social production of nature, Cattelino argues that "the representation, domination, and protection of nature in settler societies often are closely associated with settler reckonings of indigenous peoples" (Cattelino 2011, 5). I have explored nature management and the role of native plants; now I aim to illustrate how stories about (not by) indigenous peoples also influence the form and message of urban environmental education. In particular, these narratives almost always present an overly simplistic view of indigenous (Tongva/Gabrieleno) life-ways, and frame them in the past tense. As cultural studies scholar Andrea Lee Smith argues, indigenous erasure is one of the pillars of white supremacy, wherein native peoples "must *always* be disappearing" and that continued absence justifies continued possession of Native lands (2012, 68). Because settler colonialism persists as "a structure not an event" that "destroys to replace," it reaches beyond indigeneity and wilderness values to permeate throughout society, for example in terms of nationhood and citizenship, and certainly in educational environments as well (Wolfe 2006, 388; Bang et al. 2014, 37; Calderon 2014).<sup>54</sup>

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54 For example, the focus is often primarily on how to re-center, de-colonize, or re-integrate indigenous epistemologies into objective inquiry-based (Bang and Medin 2010).

In a brochure about the History of California State Parks, no mention is made of the indigenous people who lived here, and were displaced, to enable the parks' creation. There is only a brief mention of State Parks increasingly collaborating and working "extensively with Indian communities to properly represent the history of California tribes within the parks." A couple of reconstructed villages (designed in partnership with the respective communities) and a future California Indian Heritage Center are the extent of this work. The vast majority of the brochure is dedicated to other forms of history - World War II, natural resources, urban parks, historic preservation, and building the park system. A panel is also dedicated to notable women in the parks system. But what about the people of color, not to mention indigenous people, who were involved? For example, the growing recognition of the Buffalo Soldiers as backcountry Park rangers in the West, a story I wasn't aware of until I began the research for this project, first via organizations targeting an African-American audience in the outdoors, and then by related articles being simultaneously published in progressive news outlets.<sup>55</sup> Still, what other stories are obscured in this and similar narratives of California State Park history?

The native plant garden guidebook describes how "Plants in this community were an important part of Native American culture, and the Baldwin Hills serves as an important refuge for wildlife species" (Native plant garden guidebook). Similarly, in the Master Plan for the future of the park, the area is described as a "quiet, tranquil place... recalling an era when the land was untouched by human intrusion" (BHC 2002). Several intentional narratives interact here, conflating

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<sup>55</sup> Such organizations include the African American National Park Experience, Outdoor Afro, and Latino Outdoors

indigenous people as either invisible or having a perfectly harmonious relationship with nature and wildlife, but in the *past* tense, showing how settler colonial ideologies around nature and indigeneity persist even in contemporary urban settings. Further, Tongva inhabitants become framed as not human or other than human, as they don't fit in to the "human intrusion" narrative. Authenticity is central to the long-term plans for the Baldwin Hills parklands, which are intentionally designed to do more than serve as recreational space, seeking to emphasize the preservation of native habitat as well. Rather than a contrived, picturesque landscape, the driving force is to "preserve and leave undisturbed species and habitats native to the Baldwin Hills. The park will be not so much landscaped and designed as it will naturally involve over time" (Kelly 2013).

In the Migration Station activity at Ballona and Kenneth Hahn, students pretend to be migrating birds, hopping from one square of habitat (or wetland at Ballona) to the next. The exercise starts with about two dozen squares laid out in a rough shape of California, and "represent all of the wetlands that were present in California prior to European settlement" (docent instruction handout). The removal of the "wetlands" over the course of the exercise follows the history of settlement: "now remove half of the pieces of poster board [wetland], explaining that it is now after the Gold Rush of 1849, and many of our wetlands have become harbors and settlements as the population increases" (handout). The exercise ends with only 10% of the wetlands remaining, to drive home the point that today birds have too few places to rest and refuel. While it does educate about migration and the importance of wetland habitats, the exercise also subtly reiterates the narrative that pre-contact the landscape was untouched and whole, despite the very real impacts indigenous peoples had on their environment. In a classic reflection of settler



colonial myths, native peoples are seen as fully in harmony with nature, incorporated into “the fabric of the land [settlers] coveted as inhabitants of the ‘state of nature’,” and relegated to a timeless past (Whatmore 2002, 65).

The pre-contact landscapes described on student tours at Kenneth Hahn and Ballona is wild, pure, and native, directly connecting them to wilderness ideologies that also work to collapse indigeneity into a wild landscape. Critical in this conceit, is the conflation of indigenous peoples as part of wilderness. John James Audubon founding father of the National Audubon Society of which LAAS is an independent chapter, lamented the loss of places where once could “visit nature undisturbed”, considering such places to include nature, wildlife, *and native peoples* (Audubon). Similarly, in the mid-19<sup>th</sup> century a perfect or actual wilderness was described as a place where “the red man yet reigns in his native freedom” (Lanman 1856). Similarly, in describing her relationship to nature, one program director explained “I feel I’m part of it. I feel I’m one with it. I feel very much like the Tongva people. I feel like I’m a tree sometimes. I’m a bush. I’m a butterfly or plant.” Today, being able to call upon and connect with stories of indigenous histories and relationships (however over-simplified and romanticized) with a given nature space makes it that much more “real.” To do so, environmental education, and increasingly habitat revitalization programs and nature centers, highlight an idyllic indigenous past through story-telling and visual depiction.



Figure 16: Tour opening at Ballona Wetlands  
*Docent shows the below painting of Sa'angna in front of a representational ki'iy*



Figure 17: "Wiyot's Children," Gabrieleno Indian Village of Sa-angna, Playa del Rey.  
*By Mary Leighton Thomson*

At the Ballona wetlands, the educational tours always begin with a visit to the small model of a Tongva ki'iy (thatched shelter) built as a Girl Scout project (just as the observation platform was an Eagle Scout project) at the entrance to the wetlands. In many ways this initial attention is

appropriate, as it acknowledges the Wetlands (and wider Los Angeles basin) as Tongva homeland. With students gathered around the ki'iy they're not allowed to touch or enter, the lead docent displays a historic painting dated 1750 of the Los Angeles region covered with wetlands (see photo above). When asked what is missing from the landscape, students offer such replies as "civilization... electricity... buildings" (Belvedere tour). When asked to describe it, they focus on the wildlife, saying "this is a bird's dream" and never questioning the absence of people in the landscape. They are then shown a painting depicting Tongva people living in harmony with the wetlands, helping them associate the natural landscape with the time when Tongva lived here as a time before society and civilization. This framing unfortunately reinforces romanticization of the past, and the merging of the Tongva into this natural landscape. It fails to recognize the continued presence of Tongva and other Native people in the fabric of contemporary Los Angeles; indeed over 90,000 American Indians live in the city today (Bang et al. 2015). In the process it also equates contemporary society with civilization, modernity, and the absence of nature. Despite the best of intentions, these visual aids along with docent descriptions still locate Tongva as of the past and one with nature - the noble savage myth could not be more apparent.

The website of the Friends of Ballona, in the section on "Early History," reduce mention of the Tongva to one sentence: "The first inhabitants of Ballona arrived around 8-10 thousand years ago, and were eventually replaced by people from the Mohave Desert who called themselves the Tongva." A footnote describes the lifestyle of the Tongva, mentioning that survivors of contact were moved to the San Gabriel Mission. No mention is made of contemporary Tongva people. Even docent training materials for Ballona provide information on "the first people" of the wetlands - the Tongva. In docent training handouts they are referred to in the past tense, and

emphasis is on their use of natural resources for medicine, clothing, structures, etc: “The Tongva were the indigenous inhabitants of the Greater Los Angeles area... the people were somewhat short and heavy-set by European standards... the Tongva also created garments and wraps of animal skins, usually rabbit, to be worn during the cooler months.”

Interestingly, in addition to these historical factoids, docents are also instructed that “it is important to stick with providing information about the lifestyle that the Tongva lived pre-European contact. We do not want to politicize their field trip.” If students asked what happened to the Tongva, the “appropriate response would be to explain that they were taken from their villages to help build the Mission San Gabriel.” Here, it seems “not politicizing” means avoiding the darker language around forced labor, and removal not to a reservation, but from their homeland, cut adrift as it were. It also includes the ‘controversial’ fact that Tongva are present today, and continue to experience settler colonial erasure as an ongoing project. It is unfortunate that docents are instructed not to “politicize” the tour - by oversimplifying and white-washing the story of Tongva people education programs lose the opportunity to instruct about indigenous people in a way that can effectively counteract decades of pro-settler/mission narratives.

Despite these narratives around Tongva and other indigenous peoples as existing exclusively in an idyllic past landscape, representative of the wise use of nature and its resources, we know that in reality indigenous peoples continue to exist today. Their actual histories continue to reappear only to be submerged again by narratives that seek to smooth over the trauma of the past. Further, in renegotiating and masking the actual histories, indigenous futures frequently are erased. Indeed, “social inequality and power on the land have always been part of the story of

Southern California, with successive waves of conquest, colonization, property disputes, land development, and labor exploitation etching the garden-like landscape of California” (Hondagneu-Sotelo 2014, 94). Often these other histories of natural places are over-written or subsumed into stories that support settler colonial land use and nature ethics. Sometimes though, they surface.

### *Indigenous land politics today*

One significant example is the controversy that occurred during the development of the multi-million dollar Playa Vista residential development above the Ballona Creek Wetlands. In 2004, “a developer unearthed the remains of over 400 Tongva people from a two-three century old burial ground called Saa-angna (the biggest ever found in California) that is impeding development of a riparian corridor as part of the Playa Vista condominium complex” (Madigan 2004).<sup>56</sup> Worse, developers knew the cemetery was there when they started bull-dozing (Bates 2007). Unfortunately, since the tribe is not one of the 562 federally-recognized tribes, the developer was not legally bound to leave the remains untouched or respond to Tongva wishes. Requiring legal recognition as a tribe by a settler colonial government which is from its beginning and still today predicated on indigenous erasure is laughable at best. As the development lawyer remarked, ““In the old days, this would all be bulldozed,” he said. “Now it's

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<sup>56</sup> 1850, the date when California became a state, became a key determinant; graves pre-dating that time were considered archaeological resources to be catalogued. This designation is a double-edged sword: Tongva educator Cindi Alvitre remarked, that “the most tragic things that happens to burials that they do acknowledge that they're Indian burials is that they become objectified. They're no longer human beings. And at that point, we lose any connection to them as our relatives” (Alvitre in Bates 2007).

done with brushes,” as if this erases the harm being caused both to the remains, and to the integrity of the landscape’s story (Mihlsten in Madigan 2004).

Four years later in a public ceremony, the remains were re-interred in a spot near the original site, selected by “most likely descendant” Robert Dorame, as designated by the Native American Heritage Commission (Walker 2012). In effect, by physically removing remains in order to further transform the land for the benefit of property development, they are engaged in aggressive acts that render the land a-historical and in need of transformation to make it “real nature” again on settler colonial terms. During one visit to Ballona Discovery Park, developed through a partnership between LMU, the Friends of Ballona, and the Playa Vista housing developers, I was informed by a docent that the remains were re-interred in a mound at the park. There is no signage or any official information to this effect at the park. Despite the critical importance of the park site and surrounding areas to Tongva culture, the park itself presents an interesting amalgam of native plant and watershed science, along with a deeply constructed recognition of indigenous histories.

The goal for this space, according to the LMU Center for Urban Resilience website, is to be a “two-acre native garden and wildlife habitat that serves as an outdoor laboratory for pre-kindergarten through graduate-level science education” (CURES 2017). In this description, natural science is highlighted. Yet in the park itself, a number of aspects of ancient Tongva culture are present - an arbor of willow trees, informational signage, and a representational ki’iy or Tongva thatched hut. At the Tongva ki’iy, visitors can press different buttons to hear recordings by Native speakers (not exclusively Tongva) about the indigenous history of the area.

Surely for political reasons, no mention is made of the controversy that arose during the construction of the development and later, the park. At one interpretive sign upon entering the park, settler colonial logics that merge indigenous people with nature are obvious.

The sign reads “Discover the Wonders of the Ballona Wetlands,” with the first bullet entreating the visitor to “Learn how the native peoples of Ballona lived, worked, played, and coexisted with the wetland ecosystem”, and the second enticing the reader to “Stroll through gardens to explore the diversity of native plants.” Through a settler (and inquiry-based scientific) language of exploration and discovery, visitors are informed they can learn about native people (past tense) and native plants all at the same time. Similarly, a large sign describes the representational ki’iy in the Ballona Wetlands as the “Sacred historic site of a Gabrieleno Tongva Village.” Further investigation was unable to identify whether this sign and its location had any legal or cultural significance; the closest relevant site would be the historic village of Sa’anga located at the base of the Westchester Bluffs, the memorial at LMU’s campus, and the state historical site of holy springs located at University High School ([tongvapeople.org](http://tongvapeople.org), [gabrielinotribe.org](http://gabrielinotribe.org)).



Figures 18-19: Representational Tongva ki’iy (thatched hut)

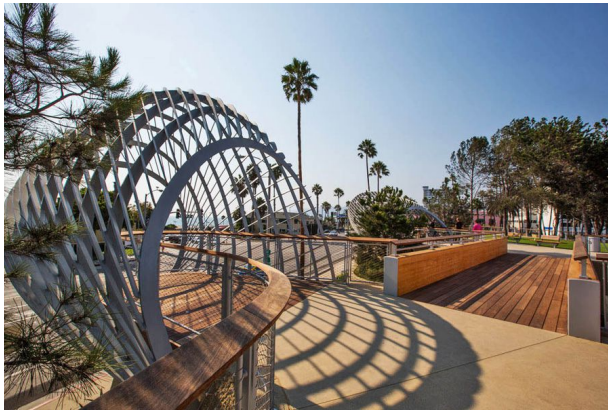
### *Memorializing Tongva*

One native person told me of an opening ceremony that representatives of her tribe were supposed to conduct at a beach clean-up event held by Heal the Bay. The event organizers were running late, but rather than maintaining the ceremony, brushed it aside in a hurry to get to the 'main event'. To my informant, this demonstrated that the ceremony was more for show than for meaning or necessity (personal communication). In Santa Monica, Tongva Park opened in 2013, a recreational green space named after the indigenous Gabrieleño/Tongva people. Its architects describe the park design as "a community-sourced vision." Indeed, community leaders and indigenous groups including the Pico Neighborhood Association and the Kuruvunga Springs Foundation succeeded in pushing the Santa Monica City Council to name the park after the region's indigenous people. As one advocate described, "it is important that at a time when overdevelopment and money-driven forces keep displacing working class families and people of color out of Santa Monica that we honor our City's First Nations Ancestors... we are still here" (de Baca Jan 2014). In this way we see how indigenous histories and rights not only persist in settler colonial societies, but also intersect with contemporary racialized and profoundly place-based processes of gentrification (Checker 2011, Perez 2002).

To counter the myth that Tongva people are extinct, Tongva Park has become a space to show the continued vibrancy of the Tongva community. Art @ Tongva is "an ongoing series of intimate and informal events that, since 2014, offer audiences the opportunity to experience the park from different points of view through dance, art, music and interactive experiences"



(Tongva Park website). The 2018 series included an evening event called “Indigenous Now” in collaboration with the Art @ Tongva Indigenous Advisory Committee, and included an indigenous opening ritual followed by a series of workshops and events by local indigenous artists. At LMU, there is also a memorial described as “the first memorial anywhere to these “People of the Earth” was dedicated in 2000 as a fitting complement to the present-day dwellings” of the university (LMU 2016).



Figures 20-21: Tongva Park landscaping & LMU Tongva Memorial

Still, the description describes Tongva people as “long-ago residents,” the memorial a tribute to their memory and a place where visitors can “gaze out over the Pacific and towards the Santa Monica Mountains as did Native Americans before them” (LMU 2016). Mercedes Dorame, an artist and cultural resource consultant whose Tongva heritage informs her work, echoes her dismay at finding a book at UCLA stating the Tongva had been wiped out by disease, remarking that “it made me think about how much of the tribal history has been erased over the years” (Dorame in Linn 2016). The tribe has no federal recognition, meaning they have no reservation

or tribal rights on the federal level.<sup>57</sup> Dorame explained that “there’s no place to gather. There’s no place to perform ceremonies. There’s no place to collectively mourn. I think that [has] had a really negative impact on my group” (Linn 2016). To push past settler narratives of the historical, one-with-nature Indian, it is important not only to recognize Tongva history through plaques and by naming parks after them, but also by recognizing and promoting the continued presence of Tongva as fellow Angelenos who continue to make artistic, economic, and social contributions to our society.

The Kuruvungna Springs at University High School represent the potential for an alternative story to the flattened histories of indigenous peoples at other nature spaces in the city. The Gabrieleno Tongva Springs Foundation was established in 1992 to preserve and protect the springs from development. There is now a cultural center and museum open one Saturday per month to the public. Events like “Life Before Columbus” bring Tongva dancers, singers, and native food, along with traditional craft workshops to the site to share with the public. Despite the benefit of such activities in raising awareness about Tongva histories, I must draw attention to the lack of inclusion of *present* stories, and the often superficial integration of contemporary Tongva people. When we do see the Tongva name or culture mentioned, it tends to focus on

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<sup>57</sup> Tribal recognition is critical for tribal sovereignty. The U.S. government, as represented by the Assistant Secretary of Indian Affairs, under Title 25 of the Code of Federal Regulations has the “authority to make the decision whether to acknowledge tribal existence and establish a government-to-government relationship or to deny acknowledging a petitioning group as an Indian tribe” (DOI Indian Affairs). Essentially, the US government can decide not to recognize a tribe such as the Tongva as a sovereign nation, thus denying them critical rights such as autonomous land, self-governance, and access to federal services such as health and education funding.

either contemporary arts and music (as in the Art @ Tongva or Made in L.A. events), or on historic artefacts.

## **Conclusion**

This chapter has explored “real” urban nature as a useful heuristic for understanding the ways in which settler colonial wilderness values persist in contemporary urban America. In particular, this is manifested by narratives of “real” urban nature as unaltered, proximate, and authentic. Environmental education programs, even those that pride their local focus, inevitably tend towards those spaces that most closely fit this narrative. Places like the Ballona Wetlands and Kenneth Hahn are narrated but also managed to meet different aspects of this vision. In particular, my research has shown wilderness and indigeneity to be defining features of authentic urban nature. This implies that authenticity, as characterized by the revival of native plants and the valorization of sites of indigenous archaeological significance, is how city-dwellers make sense of and give value to “real” nature spaces. Further, valorizing a landscape dominated by native plants, and enhanced by narratives of *past* indigenous presence privileges ideas of authenticity rather than sincerity. While backyards and neighborhood parks are important, as one LAAS staff member remarked, the expansive native habitat of “big open spaces [are] really valuable learning tools. They do present a different set of... just... more. More nature.”

Education programs like those of LAAS echo these sentiments through discourse and practice around plants as well as native peoples. These also fit into broader processes of urban greening that also increasingly privilege nature spaces and native plants as a partial response to global

issues like climate change, and local problematics like drought. Thus, participants learn about the value of restoration and native plants, and the importance of removing invasive species, foci justified through a framework of authentic indigeneity. Both Native people and native plants are framed as “belonging to this place” and therefore are supposed to be here, though in differing temporalities. As one teacher replied in a teacher evaluation form, “we experienced a perspective on native plants shared by the Tongva hundreds of years ago.” This framework raises interesting and problematic questions around who can be called “native,” and sets the stage for the kinds of nature knowledge, experience, and values that can be enacted in such places.

## CHAPTER II: PRECARITIES OF SCIENCE FOR JUSTICE

*“We need to recognize and respect ‘local science’ and acknowledge that Western science is not the only valid source of information about ecological systems” – Peterson et al. 2010, 13*

### **Introduction**

Towards the end of my field experience, in the spring of 2014, I attended my last school tour at Kenneth Hahn State Recreation Area, the same location as my very first field experience one year before. That first visit, on an exceptionally hot April day I followed 6<sup>th</sup> grade students on a dirt trail to look out over the Los Angeles basin and learn about geology. On my last official visit as a volunteer, I watched as students on this cooler spring day as students first listened to a Baldwin Hills Greenhouse Program high school intern describe insect body parts on a large poster, and then talk about animal and plant adaptation to the local landscape. Students were instructed to collect flowers, leaves, and seeds, and examine either their “treasures” or the bugs in resin provided by the program in order to create a scientific illustration. After some fidgeting, the group of primarily Latinx third graders from East Los Angeles settled down to draw the native and non-native eucalyptus leaves, sycamore seed pods, branches of sage, pinecones, and even small rocks they had collected. Students were told first to draw what they looked at in pencil. Many asked “can we trace it?,” but were told to “draw from observation” instead (fieldnotes). In our interactions with the students as docents, many told us “I can’t do it”; we responded by saying “yes you can, just draw what you see” (fieldnotes).

It was apparent that few of the children had practiced drawing from observation in such detail.

Docents encouraged their work helping select the colors to use, and pointing out parts they forgot

to draw. The emphasis on precision and the praise of detail – “I love all the details, you put all the circles and dots in there” or “look at this, this guy’s got it, great detail” was interwoven with more subjective praise – “that’s beautiful!”, “that’s a cool drawing!”, “I like it!”, “you’re a artist, this looks very nice” (fieldnotes). The objective-subjective duality is indicative of the ways in which the programs were interested in more than students’ ability to precisely reproduce observed plants and petrified bugs. Rather, as part of a social environmental justice imperative, they simultaneously seek to instill a joy of science as well as a love of nature in participating students.



Figure 22: Science illustration activities at Kenneth Hahn during a spring school tour

Drawing on Ana Tsing’s discussion of friction as the “awkward, unequal, unstable, and creative qualities of interconnection across difference,” (2005, 4) I explore how these programs

precariously leverage the universalizing objectivity of ecological science (defined as the hegemonic, rationalizing methodology of inquiry with origins in Western Europe)<sup>58</sup> epistemologies in the service of social justice desires for racial, gendered, and democratic inclusivity in environmental education. In particular, I consider the possible constraints that a program's exclusive focus on hegemonic epistemologies around scientific inquiry places on nature learning, especially for subjugated and underserved minority youth. Like Yoon, I hope to encourage program directors that despite being "raised on the milk of science," it is important to recognize that "science was neither the best nor the only valid way to order and name the living world" (Yoon 2010, 4). In that vein, I want to examine the generative potential for situated environmental education paradigms when programs give space and value to a multiplicity of knowledges.

Outdoor environmental education for minority youth is a space where normative ecological science as a culturally-situated phenomenon rubs against other subjugated epistemologies for approaching environmental learning. The LAAS programs in particular, through their desire to expose underserved children to nature, and their reliance on school-based curricula, reinforce hegemonic scientific inquiry practices, but also show glimmers of a culturally responsive plural epistemological approach.<sup>59</sup> The value of these methodologies in enhancing our knowledge of

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<sup>58</sup> Specifically, in this manuscript "objective inquiry-based science" is short-hand for the hegemonic inquiry-based methodology of knowledge production that dominates objective inquiry-based (white, Euro-American) educational and intellectual systems anchored in the rationalization of individual observation. In using this short-hand, I hope to draw attention to the ways in which this approach maintains a position of power and influence such that alternative methodologies and potentially irrational interpretations are devalued.

<sup>59</sup> See Ladson-Billings 1995, Gay 2002. See also chapter 5 in this manuscript for a deeper exploration of culturally responsive/relevant pedagogy

the world is undeniable, as is the importance of leveling the playing field by diversifying its practitioners. Still, we must also work to recognize the ways in which racialized, gendered, and classed power inequities contribute to the subjugation of alternative worldviews. Doing so paves the way for a plural epistemological approach that integrates normative scientific inquiry with an awareness of the “social location” (Appadurai 1996) of cultural and community-based needs and desires in order to more fully achieve social justice goals.

### **Democratizing science practice**

The Matsutake Research Group describes science studies as “a wide umbrella combining scholarship from historical, sociological, philosophical, and anthropological traditions,” and have tried to reveal the “cultural fingerprints” (Harding 1994) left behind on scientific data, theories, and methods” (2009, 393). Accordingly, scholars in this field have sought to diversify and democratize science, for example by applying feminist lenses to examine the situated nature of science and critique its culture and practice (Barton 1998; Brickhouse 2001; Haraway 1988, 1991; Mayberry & Rees 1997). Others offer critiques and recommendations for increasing the presence and performance of minorities in STEM fields and classrooms (Collins 2018; Flores 2011). In a 2017 NSF report, nearly 50% of all STEM jobs were shown to be held by white men, compared with only 18% of women, and 2% of Black women (see also AAUW 2010). As one article in a parenting magazine commented, “STEM, the numbers tell us, is a white man’s game, filled with white men in white lab coats” (Hill 2017). The AAUW Report “Why so few?” argues that “to diversify the STEM fields we must take a hard look at the stereotypes and biases that still pervade our culture” (AAUW 2010 xvi).



This should include recognizing inquiry-based science as just one of many epistemologies, and asking why it has come to dominate environmental practice.<sup>60</sup> For educators, particularly those teaching in underserved communities, that awareness, along with an understanding of the embedded gender, race, and class inequalities, must be integrated into their teaching methodologies and curricula. Indeed, “institutionalized modern conservation has largely been an endeavor rooted in the values, perceptions, and methods of Western conservation science and culture” (Peterson et al. 2010, 7). Anthropologist Kim TallBear came to a similar conclusion, exploring the democratization of science in relation to Indigenous peoples through Indigenous-driven research, rendering the production of scientific knowledge multi-cultural, and working towards a “distributive justice” model in which “a wider variety of people access a fairer share of the benefits of scientific knowledge production” (TallBear 2014, 177). Distributing science and diversifying its practice and precepts by including other (local, community-based, cultural) epistemologies is an important step in making environmentalism culturally adapted and politically responsive to the structural inequities that impact participants lived realities.

For example, connecting the Ballona Restoration project not only to wilderness ideologies, but also to questions of social and environmental justice, Environmental Impact Reports are exemplary of the ways in which the deep nature knowledge invoked by mainstream

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<sup>60</sup> Here I importantly don't want to suggest “objective inquiry-based science” or even “local” or “indigenous” epistemologies are monolithic and without diversity or nuance. Rather, in framing objective inquiry-based science as its own culturally constructed entity, I hope to destabilize its position of dominance in relation to science learning. For indigenous knowledges, these too must be deconstructed to avoid the monolithic (and idealizing) frames that perpetuate the very discourses scholars and activists seek to resist. Cattellino's “double bind” theory (2010) is an example of the complexity of this issue, wherein indigenous peoples are often perceived as less legitimate by the U.S. government and public alike when they engage in economic practices intended to support their own sovereignty.

environmentalism as justification for their actions is deeply linked to upper-middle-class white privilege, limited to a small community of those with the time, education, and motivation to dig deeply. The Ballona DEIR is nearly 1300 pages long. Public comments were due within 6 weeks, though significant resistance succeeded in extending the deadline past the end-of-year holidays to February 2018. Still, despite the extension, a document of this type really only speaks to those community members who already possess the kind of scientific knowledge required to digest it.<sup>61</sup> Cindy has worked in the environmental field for decades, and in a recent conversation she agreed that the Ballona DEIR was illegible to the general public: “A Draft EIR is intended to inform the public, and the sheer length is a detriment to people wanting to learn... I sucked down 600 pages and asked a lot of questions, and bopped around the appendices,” but most are not able to do that. The very nature of a DEIR then limits the community that can be reached and activated to achieve a particular environmental goal.

Concerns about unequal access to STEM learning and practice for women, minorities, and the general public has resulted in a proliferation of programs importantly seeking to engage these underrepresented groups. At Loyola Marymount University where I work in the School of Education, for five weeks over summer I watched young girls ages 4-12 be dropped off to participate in Project Scientist’s Summer Academy. In each week-long day camp, girls would “participate in hands-on experiments and daily interactions with female role models from a

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<sup>61</sup> While some might argue DEIR’s are overly influenced by political motivations, still the content is so densely scientific – that is, focused on rationalizing, inquiry-based observation – that it remains inaccessible to many, and also leaving little room for other analyses about the nature and value of a landscape that goes beyond ecological functionality.

variety of fields,” thereby hoping to “increase student achievement in science classrooms by... providing quality science instruction to local students” (Earley 2018). Other programs focus on getting minority youth and young adults interested in STEM fields through a combination of active learning techniques, community engagement, and intentional representation.

Organizations host summer programs targeting minority kids, such as the National Society of Black Engineers program SEEK, a “summer engineering experience for kids” that intentionally seeks to “increase minority elementary schools students’ knowledge in math and science, interest in pursuing engineering careers, and educational aspirations” (website). The SAM Academy is a science, art and museum mobile lab that takes science to migrant Latinx farm workers in California’s Central Valley. Los Angeles Charles Drew University of Medicine and Science offers weekend events and scholarship programs to provide a “pathway to careers in medicine, science, research, and health” for area minority youth (CDU 2018).

Like these programs, LAAS also progressively participates in this destabilization of science as a predominantly white, male, elite field by cultivating a space for an increasingly female, minority, and accessible form of scientific learning and engagement through environmental education. I do not want to denigrate these efforts, but rather draw attention to a pervasive lack of recognition of the inequities embedded in inquiry-based ecological science practices and values, how these risk subjugating people of color. As it relates to science learning, too often non-dominant youth suffer from a lack of representation, both in terms of race as well as culture and worldview, in school science, because “it fails to teach scientific understanding within the actual world in which people live their lives” (Cobern 1996, 589). Extending this point, as Lorschach and Jinks argue, science and environmental educators “all seem to overemphasize general science concepts to the

exclusion of [local] natural history” (2013, 13). Further, because these questions are often not asked, too little room is left for valorizing a multiplicity of epistemologies in environmental education.

As TallBear pointedly remarks, akin to brown-washing the green movement, diversifying science needs to do more than “browning of the laboratory” (TallBear 2014). Instead, it should destabilize the perception of inquiry-based (ecological) science as an objective a-cultural universal, and also diversify the very practice and hypotheses of science itself. TallBear’s work with Indigenous scientists tend to confirm these expectations: they emphasize situatedness, mentoring as an anchoring feature, and innovative responses to ethical/cultural problems that crop up when doing science as a Native person (TallBear 2014). Taking an optimistic turn, it is perhaps in the spaces of friction and encounter (Tsing 2005) of multiple epistemologies where programs driven by social justice imperatives can support the constitution of a locally situated, politically resistant, and culturally diverse environmental education.

### ***Women in science***

Of the over 50 volunteer docents I observed and interviewed, both within LA Audubon and at other nature-related organizations and centers such as Eaton Canyon Nature Center, Madrona Marsh Nature Preserve, and the Friends of Ballona, over 80% were women. Certainly, the association between women and nature and accompanying narratives of inferiority wherein “women are seen ‘merely’ as being closer to nature than men” has a long and problematic history (Ortner 1972, MacCormack & Strathern 1980, Haraway 1988). Ecofeminist literatures have been a significant response to this oppression, advocating for real-world applications of a theory of

self that is interconnected with life, uprooting the patriarchal systems of oppression based in an atomistic sense of self (Warren et al. 1997, Merchant 1992, Nightingale 2006). While numerous studies have shown no correlation between gender and environmental views (see Smith 2001 for a review article), in conducting my fieldwork I was repeatedly struck by the disproportionate representation of women in the field. My very first note scribbled while in the field was to note that there were 18 women and only 3 men at the first docent training session at Ballona (fieldnotes). In interviews, several docents implied that there were more women because the programs they were involved in were geared towards children and teaching, also domains traditionally marked as female.<sup>62</sup>

Not only did women significantly outnumber men as volunteers, but they also led many of the small-scale environmental non-profits and nature centers I interacted with. At the Los Angeles Audubon Society, the board membership is comprised of 3 women and 2 men, and the President of the Board (and of the Society as there is no paid leadership) is a woman. The Director of Outdoor Education, Director of Environmental Education, and the Development Director are also all women. Even more importantly, the President is a restoration ecologist with a PhD, and the Director of Environmental Education is currently enrolled in an Ed.D. program. While my data did not show any overt differences in the ways the women instructed children and led tours over the men, a highly-educated female leadership is a powerful way to representationally support young women in science careers, and in subverting the male-dominated field.

Anthropologist Kim TallBear speaks to this point, articulating a feminist science studies

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<sup>62</sup> Teaching became marked as a women's profession in the early 1900s (Simpson 2004, Snyder and Green 2008).

framework in order to trouble inquiry-based science claims to neutrality, working through Haraway's (1991) "God trick" metaphor to counter the distanced gaze of white, male, heteronormative scientists. Working at the intersection of gender and race, leaders of culturally-specific environmental organizations like Outdoor Afro and African American National Park Experience are Black women. Indeed, "the experiential knowledge of Women and Men of Color is legitimate, appropriate, and critical to understanding, analyzing, practicing, and teaching about ... racial subordination" (Solorzano 1998, 7). Representation matters.

### *Environmentalists of color*

This is something that the LAAS does well, and can and should expand upon. In their programs, high school students who have gone through the Greenhouse Program visit the partner elementary schools to teach the younger children about restoration and conservation. Through this process, young children see educators who look like them, often even coming from the same community or having attended the same school. The focus on relationship and community-building is an important side effect of this instructional process. As Director of Environmental Education Stacey Vigallon acknowledges, "I didn't grow up here and I don't have that background; it can't just be all white people coming in and fixing things."

Speaking with one of their star interns, Brent, an African-American student who attended Dorsey High School and participated in the Greenhouse Program, it is obvious that this aspect is important to the program but also to participants. In my interviews with Brent and other former students turned interns, they frequently articulated similar perspectives. When asked how he felt about teaching to inner-city minority kids, he responded saying "That's very important to me...

it's giving them the opportunity and genuinely letting them know, even in the city things are more expansive than you understand." And when asked if he would feel the same about the program if it didn't have the emphasis on underserved kids, he replied, "I think I still would do it, but I don't think it would have the same meaning to me. Because of my background. Most of the schools we do see, the kids have a similar background to me so I know a lot of what its like to be in that [environment]."

Edmundo, a Latinx Santa Monica College (a Los Angeles community college) student remarked that it was important for the students to have "something to believe in and dream about," and in speaking to Latinx children to act as "proof to them that you can be and do more." Another SMC student volunteer, Oscar, had a similarly hopeful perspective, while paying extra emphasis on the students' own perspective, countering the intensely science-driven and settler colonial ideology that guides the content. He simply "want[ed] them to think, to feel things," and preferred not to talk, "focus[ing] on the experience and be[ing] in the moment." This world view approaches a more inclusive and emotive epistemology that takes into account not only community but also individual experience. Echoing these sentiments, in describing Brent, Stacey remarked how happy LAAS leaders were that Brian worked for them for this exact reason; "he's an amazing ambassador... he shows this can be done... the kids get excited about Dorsey students coming. Having role models that look like you is important."

### ***Going public***

In addition to female leadership and a desire to reach minority youth, urban environmental education programs also participate in broader efforts to make science accessible to a wider

general public. Citizen science is not new. Though many cite the 1900 Christmas Bird Count as the first citizen science project, the earliest volunteer bird surveys were in the late 1800s investigating the number of birds impacting lighthouse windows.<sup>63</sup> The work of citizen science is often described as a space where ordinary people can get involved with scientific inquiry. Some argue the intent is to make the “knowledge-making process of a science more democratic by giving a community some degree of decision-making” (Gittleman et al. 2012, 2). The best citizen science efforts therefore empower communities with choice over the kinds of data and how to collect them, and much of the literature generally views citizen science projects as a public good (Cooper et al. 2007, Dickinson et al. 2012).

Environmental citizen science often has two goals, first to crowdsource data collection for scientific projects, and second and perhaps more importantly, to attract people to nature (Aikenhead 2009, Jasanoff 2004). An online citizen science toolkit explains: “In addition to collecting good information for us on a subset of those areas, we wanted families to get out there and actually experience nature at night, to move away from the television and realize that they themselves can actually engage in nature” (Cornell 2007, 3). Birding is perhaps one of the earliest and most widespread areas of citizen science, where amateur nature lovers collect their own data on bird species, breeding habits, appearance, etc. and share with the scientific community. Indeed, though attendance at the LAAS monthly meetings was relatively low during the 2014-2015 year, when I organized a launch meeting for the Breeding Bird Atlas published by the Society, attendance numbers jumped to a few dozen people. Many of these were people who

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<sup>63</sup> The lighthouse surveys were organized by the American Ornithologists’ Union in the 1880s.



had volunteered to participate in the data collection, the citizen science, of the Atlas and were proud to see and share their work (fieldnotes).

The Natural History Museum of Los Angeles<sup>64</sup> is one site of extensive citizen science initiatives focused on the environment, and urban ecology biodiversity in particular. There are currently four “biodiversity information-gathering enterprises” running at the museum - BioSCAN (insects), RASCals (reptiles and amphibians), SLIME (snails and slugs), L.A. Spider Survey, and the Southern California Squirrel Survey. These projects are science-focused in design, method, and outcome. The explicit goal is to connect ordinary people in their ordinary lives to nature, with an emphasis on knowing nature by way of collecting mass quantities of information through activities like bird counts, monarch tagging, and backyard nature surveys. My concern is not so much with the presence of inquiry-based ecological science techniques as a way to democratize environmental practice, but rather to question their prioritization, as it risks leaving out the subjugated epistemologies of non-dominant populations. It also neglects the very real power dynamics at play that may limit the access of such efforts to the wider public.

In Los Angeles, a city where nearly 50% of the population identifies as Latinx (Census Bureau 2010), this negligence can have a significant impact. While most people have smartphones, the very language around ‘citizen’ is exclusionary. In early 2018, the LAAS Board realized their website still indicated “citizen science” and hastily changed in to “community science.” This was

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<sup>64</sup> Curator of ornithology Kimball Garrett is a long-time member and support of LAAS, and one of the main authors of the recently released Breeding Bird Atlas.

in response to a very recent shift from “citizen science” to “community science,” in an effort to include those residents who may be undocumented. The Natural History Museum of Los Angeles and the Audubon Center at Debs Park (which partners with LAAS for various speaker events) followed suit, commenting that “no matter where a volunteer was born, or how they came to the United States, we value their contribution to our science and conservation programs. Citizenship, or the perception that a volunteer may or may not be a citizen, certainly isn’t a prerequisite to caring for birds” (Debs Park 2018). Further, little effort is made to consider how practices of documentation, tracking, and surveying so fundamental to community science practices, while typical of inquiry-based Eurocentric science, also risk recalling the traumatic events non-dominant groups have experience (Ordovery 2003; Roberts 2011). For example, scholars in other fields like public health have examined the lack of participation in surveys and clinical trials, argument that in addition to awareness and communication barriers, the evident mistrust of scientists by minorities connects to a history of unethical experimentation, fears of undocumented status being discovered, and even the collective memory of slavery (Corbie-Smith et al. 2002).

Describing the contributions of its Citizen Science projects, the spring 2016 issue of the NHM’s Naturalist magazine proudly proclaims: “55 species of snails and slugs identified; 43 species of insects new to science; 4 new state records and 18 new county records of reptiles and amphibians”.<sup>65</sup> Given the approach it is to be expected that the major accomplishments are in

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<sup>65</sup> Interestingly, the January 2016 issue doesn’t use the same parameters, instead counting the numbers of observations and submissions (16,400 observations of reptiles and amphibians, 5,871 spider submissions, 3,224 records of snails and slugs, 43 new species of insects).

numbers of species documented. Again though, we should pause to ask, why is such documentation is so important? The Urban Nature Research Center, whose goals are ostensibly broader than simply cataloguing species, also emphasizes documentation in their advertisements. For NHM Citizen Science Manager Lila Higgins, citizen science is “getting non-scientists involved in the scientific process to help answer real-world questions” (Higgins 2014).

The phenomenon of citizen (community) science has experienced explosive growth in the last several years, in great part due to social media and the ease with which ordinary folk can document the nature they see around them. The Natural History Museum implores community scientists to “get your nature eyes on” and see the nature that is actually here in the city. It develops an awareness both of urban nature, and of the possibilities of seeing science knowledge and practice in everyday life. I do not deny that these are valuable tools and experiences in the democratization of science. In environmental education programs with a distinctly social justice framework however, it is important to recognize the narrow epistemological frame of this approach, and make sure to integrate subjugated epistemologies (Foucault 1980) in order to truly diversify the practitioners as well as *practice* of science.

The Los Angeles Audubon Society is fundamentally a birding organization. Birders interact with nature through two primary senses - sight, and sound. While experienced birders can recognize the most nuanced of bird calls, beginning birders start by learning how to recognize birds by sight. The Sibley Guide to Birds is considered the Bible of Western birding, a guidebook any serious birder should have on hand. It teaches birders to visually recognize birds based on their body size, wingspan, and especially, feather markings. For each species, the guide provides a

brief text description of the markings, along with highly detailed scientific illustrations of the bird, both male and female, in flight and at rest, breeding and non-breeding, juvenile and adult. Major events on a birder's calendar include the Great Backyard Bird Count and the Christmas Bird Count. Each year in February, birders across the country and globe participate in the GBBC, one of the original online citizen science events, started in 1998. The website advertises the popularity of the event, remarking that over 160,000 people join the four-day event each year. The rules are simple: spend at least fifteen minutes documenting (visually or in a list) all the birds you see in one location. This event is inspired by the Christmas Bird Count, launched in 1900 by the National Audubon Society in the United States and later expanded to Canada, in what might arguably the oldest organized community science project in America.

Thanks to technology, participants can now document their sightings for both events on the eBird website or app. Like iNaturalist, this web and app-based service provided by the Cornell Lab of Ornithology highlights the following key features: "find more birds," "share your sightings," and "track your lists." The contributing data is ranked, and regions, eBirders, and birds themselves are ranked in terms of highest counts, recent sightings, top submitters and hotspots. The Cornell lab of ornithology argues for the "potential for citizen science to promote the mission of conservation by including, not just skills and knowledge, but attitudes and behavior (e.g. stewardship) as desired outcomes" (Cornell 2007, 3).

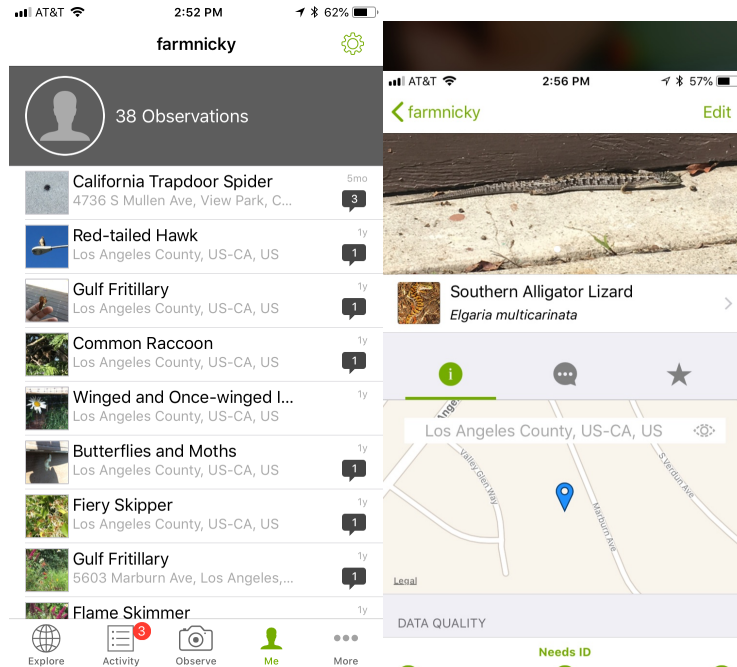


Figure 23: iNaturalist app homepage and observation description.

A key enabler of inquiry-based science epistemologies around community science is the explosion of social media such as twitter and Instagram, along with smartphone apps like iNaturalist and eBird. These resources give value to and enable the quick visual documentation of wildlife. Groups and even cities will compete to see how many instances of documentation occur within a given time frame. Scholars have argued in support of community science practices via social media as a way to encourage nature awareness, political participation in urban life, and even develop future environmental scientists (Foth et al. 2011; Gura 2013).

Science-based environmental engagement apps have proliferated, creating a space for the general public to discover and engage in scientific discovery of their immediate environment. They are posited on the belief that there is no need to leave the city to encounter nature. The potential of social media and technology in engaging the public in science is real; one article showed that in

just one week, Pokemon GO users documented as much information on virtual animals as naturalist have on real fauna in 400 years (Dorward et al. 2017). Again, while beneficial in expanding the reach and accessibility of science to women, minorities, and the general public, it remains important to consider the limitations of such a narrow focus on inquiry-based science epistemologies. Rather, to truly diversify science participation, educators and scientists must actively work to also integrate other subjugated relational and locational epistemologies.

LAAS programs argue that the skills and knowledges students and docents alike acquire “are things that get in to their consciousness” (annual meeting 2016). The science literacy cultivated through community science efforts such as California Least Tern and Snowy Plover Monitoring is intimately tied to stewardship values and awareness of local nature. As program leader Stacey describes, “When we get a bus of Dorsey students out to the tern colony, all those fancy condo people see that young people care, and it’s not just the young people who live in those neighborhoods.” Further, the citizen science, education, and restoration programs are all interconnected such that “they get a full picture of what’s happening in their immediate area, and that’s one of our real messages that we want to put out. Even though here we are in second biggest city in the country, but there is nature all around us in Los Angeles, it’s one of things that makes LA unique and so desirable for people to settle here” (Hardin 2016).

### **Scientific environmental education**

#### ***Inquiry-based (ecological) science***

What is science? The etymology of the word is in fact a gateway into its profoundly situated nature. Scientia, the Latin root of science, simply means knowledge. Education scholars like

Masakata Ogawa (1995, 588) expand on this to define science as a “rational perceiving of reality,” a definition that allows for a more dynamic form nature of learning and inquiry. Accordingly, Ogawa (1995) and science historian Yehuda Elkana (1981) argue that each culture in fact has its own science. If science is essentially knowledge or a perception of reality, then it makes sense to engage in nature-based science that capitalizes on the ways we experience nature “as a medley of sensations that play upon us in complex ways” (Orr 2004, 94). Orr questions why we do not organize education the way we “sense the world” – one solution might be that “part of the curriculum [is] given to the study of natural systems roughly in the manner in which we experience them” (2004, 94). This the work that LAAS programs, and others like FOB, NOLS, and Outward Bound also engage in, working to move past the abstraction of textbooks into lived reality. This valuable work can be further enhanced by expanding the very epistemology upon which it is based, in order to include subjugated sciences of the natural world. Such an approach can both destabilize traditional science curricula focused on objective inquiry, and more deeply contribute to social justice efforts at science diversification. It does more than “brown-washing” the field of science, instead making natural science itself more diverse in both content and practice.

The underlying epistemology of “hard science” as currently practiced generally places a strong emphasis on cognition and vision as primary tools for accessing knowledge. Specifically, logical empiricism (positivism) is its foundation, and has come to take precedence over most other forms of knowledge production and inquiry (Snively and Corsiglia 2001).<sup>66</sup> Further, it

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<sup>66</sup> Here I add in the idea of ‘traditional’ inquiry-based Western science, as the concept of what is Western is itself fluid and constantly changing. Increasingly, normative science practitioners are seeking to diversify their participants

participates in the larger project of modernist and attendant themes of discovery, expansion, and colonization of indigenous peoples and lands (Smith 2015). In a (settler) colonial context, the “objective” data and research that resulted from Western European exploration was as much about organizing and classifying, as it was about power and domination (see also Said). Colonialism categorized and subjugated the Other, settler colonialism took that a step further to remove and erase the Other, making it as though they (indigenous people) had never existed. Importantly, objective inquiry-based modern science epistemology is not universal (or monolithic), but rather is culturally situated, “swim[ming] in a sea of cultural assumptions about progress, self-interest, winning/losing, aggressiveness, attitude to time... and the benefits of immediate advantage” (Snively and Corsiglia 2001).

Following this line of thinking, if science is a culturally situated knowledge of the world, then it behooves educators to incorporate multiple sciences into environmental education content and discourse. Even though Los Angeles environmental education is in a “Western” cultural setting, it is also an exceedingly diverse one studded with multiple other cultures that have been subjugated to the dominant mainstream way of thinking about and interacting with the environment. Thus, instead of seeing other environmental knowledges as less developed or too imprecise relative to objective inquiry-based modern science, we should instead consider how these sciences shine alternate lenses on the same issue, leading to a richer overall picture. In what

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(Collins 2018) and their approach by (attempting to) work with local communities in the production of scientific knowledge (West 2006, others). Objective scientific inquiry characterized by the scientific method then as a form is itself diverse, although some key principles around detailed documentation, visual observation, and cognitive analysis in controlled settings remain.



follows, I will examine the ways in which elements of “objective” scientific inquiry are employed, but also tentatively enriched, within environmental education.

Foucault argued that knowledge can “function as a form of power and disseminates the effects of power” (Foucault 1980, 69). Science and Technology Studies (STS) scholars directly take up this idea to examine how exactly knowledge (especially scientific expertise) is produced, distributed, and circulated (Goldman et al. 2011; Haraway 1991; Jasanoff 2004; Latour 2004). Coming out of a feminist tradition, Haraway developed the “situated knowledges” concept to offer a broader analytical framework, arguing that STS insufficiently addresses “practices of domination and the unequal parts of privilege and oppression that make up all positions” involved in knowledge production (Haraway 1988, 579). This applies in particular to the production of “objective” and inquiry-based scientific knowledge, whose practitioners frequently (though not always) either ignore or simply map alternative knowledges (local, community-based, spiritual, etc.) onto the science, justifying its validity. In this way, community knowledge and observation about wildlife behavior for example is either ignored as inaccurate (Barnhardt and Kawagley 2005), or subsumed into rational explanations of that behavior as proof of the accuracy and objectivity of normative science (Bonney et al. 2009).

Ultimately, these literatures illuminate the education process as a tool of political power by socializing people into specific ways of being and specific social identities. In particular, Foucault usefully illustrates how “science” itself is in fact a human construct resulting from the “disciplinization of knowledges.” He describes knowledges disqualified by hegemonic narratives as those that have been *portrayed* as “naïve knowledge, hierarchically inferior

knowledge, knowledges that are below the required level of erudition or scientificity” (Foucault 1980). Importantly, it implies that recognizing these knowledges is not so much about their legitimacy/validity, as it is about revealing their potentiality as well-justified types of knowledge (Hewett 2004). In the context of environmental education that relies on government-based structures for funding, applying Foucault illuminates how the potential plurality of nature knowledge and experience becomes restricted. Accordingly, program organizers remark to docents in training that “if we can say look, that fieldtrip that you’re gonna take with us is gonna cover state science standards, it’s easier for them to justify the trip... it also makes it easy for us, it gives us a framework to follow.”

Before delving into the potentialities of integrating subjugated knowledges to inquiry-based ecological science content and practice, I want to take a closer look at its practice and discourse in the environmental education context. Indeed, “we need to recognize and respect “local science” and acknowledge that Western science is not the only valid source of information about ecological systems” because conservation science and culture is fundamental to modern conservation environmentalisms (Peterson et al. 2010, 13,7). In addition to citizen science programs like those for the Snowy Plovers and California Least Terns that are explicitly about doing science, the education programs also rely on the tools and techniques of “objective” scientific inquiry to teach nature to students. This is in great part due to the California Next Generation Science Standards that drive the curriculum, and is reinforced by a scientifically-trained organizational leadership. Referring to the teachers and her use of NGSS, program director Cindy remarked to me that “It makes them happy. It helps the kids to see hands-on what they’re trying to shove down their throats.”

### *Next Generation Science Standards*

The pedagogy and content of science teaching and learning in the American school system plays a significant role in the development of environmental education programs. In 2010 California voted to switch over to the Common Core State Standards, planning to adopt them in the 2014-2015 school year. These new Standards were designed to re-center student learning on problem solving and conceptual understanding, focusing more on depth than breadth (PPIC 2018). Public schools in California also implement the state-mandated Next Generation Science Standards (NGSS), aligned with the Common Core State Standards for Mathematics and English Language Arts. Together, these standards are designed to “teach students to analyze data, model concepts, and strategically use tools through productive talk and shared activity” (NSTA 2018).

The NGSS put forth three dimensions for science learning that include Practices, Core Ideas, and Crosscutting. These apply to all four domains of science that the NGSS have categorized as Physical Science, Life Science, Earth and Space Science, and Engineering Design (NSTA 2018). The problem is not with the scientific content or methodology. Rather, it is in presenting and valuing this methodology above all others as a way to robustly observe and describe the natural environment. Of course, the fundamental imperative of developing state-wide standards to some extent necessitates a heavy-handed masking of conflicting perspectives. Still, not contextualizing this process, nor recognizing the place for a plurality of methodologies of inquiry into and relationship with the natural environment is inherently limiting. Further, because it is assumed to be objective and universally relevant, normative science pedagogies are rarely inclusive of cultural and individual difference (Cobern 1996). As a result, in urban America the privileged

knowledge of environmental education is scientific, and the experience one of exploration and inquiry. By focusing exclusively on the methodologies and data-interests of ecological science practice environmental education programs thereby marginalize the subjugated knowledges, experiences, and values already present in their programs that could lead to a more inclusive epistemological experience.

NGSS emphasizes themes like ecology, food chains, habitats, etc. Docents are consequently provided information about the standards for 3<sup>rd</sup> and 4<sup>th</sup> grades (their target groups) that highlight these points. For example: “students learn examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands and wetlands. At Ballona we have several different mini-habitats. The invertebrates that we find in the small pond by the oil well will be different than those that are found in the more saline tidal channel” (docent handout). Consequently, the program is framed as “providing an exciting living laboratory that can help us teach our children about math and science” (pamphlet). Even with this small example, there is room for a more inclusive approach that acknowledges the human histories, such as settler colonial indigenous erasure, urban development, and community stories embedded within this landscape, without doing away with the scientific terminology aligned with NGSS. Similarly, in 4<sup>th</sup> grade students learn that “organisms need energy/matter to live and grow, and depend on one another and their environment to survive” (docent handout). Taking a culturally inclusive approach, I invite the reader to consider what this information might look like if framed through the lens of family? What if an analogy was made with reference to a student’s home community and social network?

When I visited the participating schools to see how the natural sciences were taught in the classroom, I was surprised by the extent to which both nature and science were at once marginalized and also conflated with one another. In most of the dozen classrooms I visited, science and nature were taught once a week, at the same time. In one fourth grade EL (English Learners) classroom, I observed the teacher conduct a science lesson about the moon. The students were to have observed the moon once a week for the last three weeks and take notes at home. In class, the teacher asked them what the moon looked like and how it changed, then reading aloud one paragraph from the science textbook. That was the entirety of the lesson, which lasted about 20 minutes. The method was focused on acquiring data, limited experimentation, and individual inquiry. In one classroom, the teacher said “this is science can you handle it? If not, go outside” making science appear a privilege rather than a right (fieldnotes). Certainly, environmental education programs work to redress this kind of narrow framing of science, at least getting kids outside to engage in inquiry-based science practice and learn scientific facts. In this case, the hints a story-telling (describe how the moon looked to you) can be key to making scientific inquiry of our natural environment a more situated and nuanced experience, especially insofar as it allows for personal and community-based narratives to add flesh to the skeleton of scientific description.

### ***Program Content***

Each year program director Cindy Hardin produces a review summary of all the teacher feedback from the Ballona and Kenneth Hahn programs. At Ballona, in the 2013-2014 school year, the program sponsored 2865 students from 33 schools. The top subjects the teachers were interested in included exploring a wetland ecosystem (due to related science standards that teach biomes)

(11 responses), using microscopes (5 responses), and learning about Native Americans (3 responses) and native plants and animals (4 responses). For the students, the teachers observed the top draws to be seeing the birds (14), various scientific tool use such as binoculars and microscopes (18=aggregate), and doing restoration work (4). One docent was kind enough to share her tour “cheat sheet” with me. Her notes focus on defining terms (wetlands, habitat), ecological system functions (photosynthesis, providing food and habitat, trap sediment, marsh plants capture energy, filter system), species categories and features (what is a bird and what do they need, types of birds by hunting method), and Tongva *history* (what they ate, how they used plant materials). Such information is closely aligned with NGSS Science Standards, which are also closely aligned with how the docent perceives the teaching and experiencing of nature. In the pre-tour field trip packets, students are supplied with a small field booklet to the flora and fauna of Ballona or Kenneth Hahn, depending on where they are touring. They are also supplied with coloring pages of birds they might see at Ballona such as red-tailed hawks, gnatcatchers, great blue herons, and kingfishers, as well as crossword puzzles and a word-search, and a key terms glossary. At Kenneth Hahn, the supplies are similar, with a focus on the cardinal directions and compass use, and on renewable vs. non-renewable resources.



Figure 24: Students experimenting with soil drainage

Using school science standards as an “in” to get students out in the landscape increases access but also narrows the pathways of accessing/connecting with nature to ones of scientific observation in specific settings. At Kenneth Hahn, docents are taught about soil and drainage, and how to identify them by particle size and drainage speeds. They use this experiment to introduce concepts like nutrient retention and plant communities. Students articulate a hypothesis, for example, they suppose the sandy soil will drain faster. They then break into groups and test their hypotheses by timing how quickly water drains in two different soil contexts. While this certainly gets students active in the outdoors, and provides important ecological information, it presents a relatively narrow epistemological frame by which to understand local ecology. Indeed, students themselves already make broader connections anchoring their ecological understanding in a sense of place, connections that could be

capitalized upon and made explicit. As Cindy is fond of saying, some students are excited by how much the sage plants at Kenneth Hahn remind them of their grandparents' home in El Salvador (fieldnotes). Digging in to these reactions and connections can tell a richer story. Additional frames such as the history of urban development in Los Angeles, Tongva storytelling about the landscape, or the impacts of native soil on urban community gardens could easily be integrated into and expand upon these science-based lessons. Doing so would afford students with the deeper sense of place that the programs explicitly seek to cultivate, while also responding to social justice imperatives to diversify the practitioners of science and give voice to historically subjugated knowledges.

The emphasis on the scientific aspects of wetland ecology is directly correlated to NGSS standards and appreciated by teachers, but is also demonstrative of a narrow focus on science that does not fully integrate the human story. This problematic because, as Megan Bang and Ananda Marin paraphrase, “most representations of ecosystems fail to include humans, but even when humans are present, they often reflect frames of extraction or pollution which are manifestations of dominant nature-culture relations of human domination and entitlement” (Medin and Bang 2014). Though these programs do include such tales, they are often left unproblematic for fear of being too “political” for the students. I argue that it is precisely in politicizing learning, in age-appropriate ways, that we can achieve the kind of community-driven place-based environmental education groups like LAAS seek. Politicizing environmental science learning means attending to the complex social histories embedded in ecological places, as well



as integrating their stories in the ways science is taught.<sup>67</sup> In Los Angeles, it means bringing indigeneity out of the past and into present, and incorporating the diversity of cultures and worldviews into education in order to shine alternative lenses onto the same subject. If learning about urban nature is a prism, inquiry-based “objective” science, a political history of urban development, and community experiences are some of its facets.

### ***Documentation & naming***

Anthropologist Tim Ingold critiqued such science as a system of knowledge for its concern with establishing “its scientific credentials through its claim to produce accurate and objective representations of a world ‘out there’” (2000, 229). The idea of accuracy and objectivity is fundamental to an inquiry-based scientific approach to knowledge production. It is premised on the idea that there is only one way to precisely record and interpret the natural world, or that it even needs to be accurately recorded at all, devaluing the validity of subjective experience and interpretation as “real” knowledge.<sup>68</sup> Canadian forester Michael Blackstock (2002) suggests that the taxonomic lens of this kind of science “has created a chasm between the living and non-living components of our world” [Blackstock 2002,3], a chasm that reflects a human-centered ontology [McLean, 2009]” (Bang et al. 2012, 307).

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<sup>67</sup> Of course, politicizing knowledge also has its downside. One only need to look to the current debates about climate change and how their support and refute have been deployed as strategies for political advancement on both sides of the aisle. Additionally, the ability to create, possess, and acquire knowledge has been used as a political tool to oppress and discriminate against those who do not have access to knowledge, a position often enabled by those same holders of knowledge. In this context, I want to politicize not the possession of knowledge, but rather the process by which it is created and disseminated, in order to draw attention to the histories and experiences of subjugated people that are often obscured in that process.

<sup>68</sup> Further, it implies that only humans, because of this complex methodology, can fully know nature.

In *Naming Nature*, Yoon offers an intriguing account of the complexity of documentation and taxonomy in the world of objective inquiry-based science. She shows how taxonomy is in fact anything but objective; rather it is constantly shifting and changing. Equally importantly, she acknowledges that as a scientist she had learned “to know better than to trust in anything other than science,” but was proven wrong (2009, 10). She continues by referencing von Uexhüll’s “umwelt” concept. Thus, all humans are drawn to order and classify the environment around them, albeit in very different ways. Yoon (2009) continues with the premise that science is simply “naked reason” and “elegant experimentation.” What if we acknowledge that all people use “naked reason” and “elegant experimentation” to classify and see the world in different *but equally valid* ways? What if inquiry-based science were taught as just one of many ways that people can perceive the environment, plants and animals, and our relationship to them? While not explicit, in practice the beginnings of an understanding of umwelt is precisely what outdoor environmental education programs begin to achieve.

In the Teacher Training program, participants were provided with sample Field Notebooks created by 5<sup>th</sup> grade students at one of LAAS’ partner schools, Leo Politi Elementary. These notebooks are designed to help students pay more attention to their surroundings, using scientific methods of documentation and description to create their umwelt, including counting, illustrating, and making specific descriptions. Record-keeping and naming is a critical part of these programs. In the documentation provided to trainees, one boldly proclaims that the field notebook is “the most important scientific tool you will ever use” (handout). Initially, field notebooks were also handed out to students participating in the LAAS program at Kenneth Hahn State Recreation Area. This first year of using the notebooks coincided with my first year of

research in 2013-2014. Perhaps pointing to the precarity of lab-style practice in an outdoor setting, docents and students quickly discovered the thin paper pamphlets were flimsy to use, so they introduced clipboard. Still, even with the clipboards, field notebooks proved more cumbersome than expected, and slowed or interrupted the flow of the lessons, teachable moments, and conversation. The time it took students, especially the younger ones, to stop and fill out the requested information was intrusive, and by the end of each tour over half of the notebooks would have one or more empty pages where students either didn't have the time, or the desire, to complete them. This is one case where the detailed observation techniques of objective inquiry-based science come into non-generative friction with the more embodied experience that can and often is achieved in outdoor environmental education.

Happily, the organization quickly left those aside to allow for the more immersive experience they were aiming for, but it points to the blanket invocation of science as a critical tool in education programs. The LAAS programs are not the only ones that emphasize documentation and observation. The "Junior Naturalist" program at Eaton Canyon Natural Area also asks: "Would you like to become a Junior Naturalist? During these series of classes, students will learn about nature and develop observation and documentation skills so that they can better understand the natural world" (pamphlet). The Natural History Museum of Los Angeles employs similar language and practices in one of their flyers: "We've also included their scientific names to make it easier for you to find information about them - there are many excellent books and websites out there to help you learn more. So, head to your local library, peruse the bookstore shelves, browse the internet, and most importantly... keep visiting the native plant and wildlife garden!"

The importance of embodied presence is evident in admonishments to “keep visiting” such spaces, though tool use continues to be primordial in such efforts.

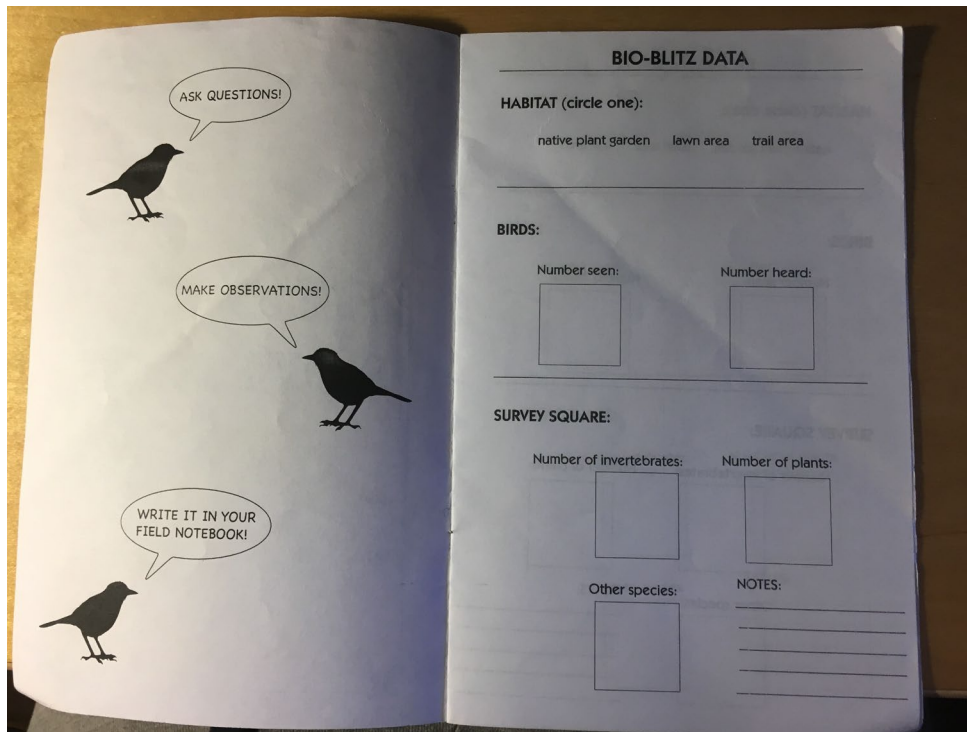
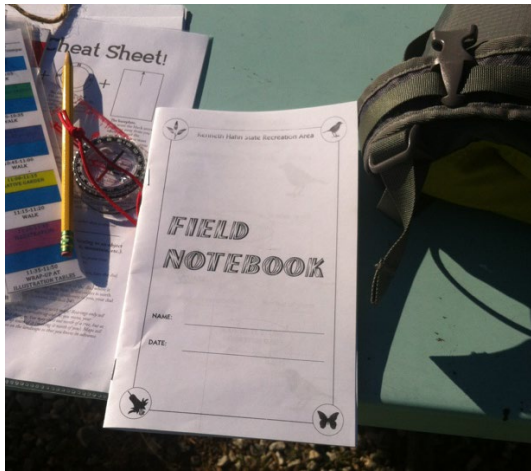
### *Scientific illustration & field guides*

Scientific illustration plays a central role at the education programs at both Kenneth Hahn and the Ballona Wetlands. Its inclusion is designed to facilitate nature learning by leveraging art and creativity into science, teaching students to provide an accurate, objective representation of natural phenomena. Educator Stacey Vigallon, in designing the scientific illustration components of the outdoor education programs, as well as the science illustration program within Leo Politi and Esperanza elementary schools, is working to move past that narrow perception. Docent education emphasizes three key values of scientific illustration: “drawing helps you learn to see and observe better; drawing is a skill that can be learned; and drawing is just another way to communicate.” These points focus on deconstructing what is observed into its component parts, a hallmark of objective inquiry-based science epistemologies.

When drawing a flower for example, participants are taught that “complicated shapes... can often be broken down into simpler shapes once you start strategizing how to turn a three-dimensional object into a two-dimensional image.” At a Sketch-and-Walk event at BHSO, participants were provided a list of 6 sketching goals, including still life, being a “nature detective” and “collecting wildlife tracks”, and creating an “adventure map.” All of these aspects cultivate close observation skills of the nature around them emphasize nature interaction through scientific data collection. Indeed, language like “detective,” “collecting,” and “adventure maps” all reinforce these dominance narratives that make nature accessible only when placed at the

fingertips of the scientific observer. And yet, in an instance of generative friction between the objective inquiry-based science techniques and more intimate outdoor experiences, it seems that these activities do indeed cultivate a simultaneously personal yet also informed nature awareness. These examples also demonstrate the tensions between generative and non-generative friction between objective inquiry-based science and subjective outdoor experience, and will be expanded upon in the following chapter.

At Kenneth Hahn, one of the four stations for student tours is called the “illustration station”. Students are instructed to use the magnifying glasses and draw images of beetles and butterflies preserved in resin, or draw the collected bits of nature provided on the table. The more artistically inclined students enjoy it, most are easily distracted and fearful of making mistakes. The activity is also advertised as a central component of the LAAS science-based summer camp for ages 7-12. At Ballona, this close observation takes the form of the microscope station, using this up-close-and-*personal* approach to teach students about the relationality of the food chain, reiterating the “we are all connected” language so common to outdoor education. It is a tricky balance to achieve and maintain. While the technique does teach students to look more closely at the nature around them, again trying to cultivate “wonder”, it also risks limiting the nature learning experience to one of “record keeping,” documentation, and factual description, resituating nature as an “outdoor classroom” or “living laboratory.”

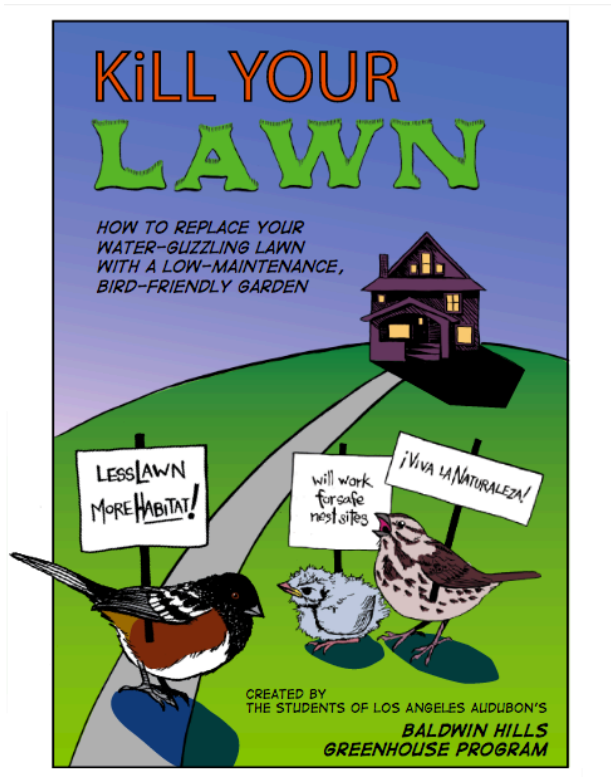


Figures 25-27: Compass, Station guides, field notebook, binoculars, illustration

On one hand environmental education efforts seek to cultivate traits of scientific inquiry; on the other, they want to remain true to the program goal of “a connection and thinking outside yourself.” The Director of Environmental Education Stacey Vigallon wants to think more expansively; she thinks “a lot of programs get caught up in they all have to become scientists.

And I don't believe that at all." And yet she paradoxically maintains a focus on scientific illustration and the need for "ecologists from the inner city... folks who understand what it is like to live here, and not just middle-class folks who got to go camping a lot as a kid." This tension between science-for-all, and not-everyone-is-a-scientist can be found in all aspects of outdoor environmental education programming. On the one hand educators want students to connect to nature on a deeper, more personal level, yet they also want to ensure all students leave the program with basic scientific knowledge about nature.

Another example of such a paradox lies within the illustration programs that occur within the school setting, which are in fact more immersive and intimate than those that occur on tours. Of course, this could be tied to the amount of time available for such work, though I would also posit that the more art-centric format better lends itself to inclusivity and intimacy. One of the projects that resulted from the science illustration school programs was the "Kill your Lawn" comic book students produced (see figure 28-29). At Leo Politi, the students hold an art exhibit that draws on their science illustration skills to depict nature. Vigallon commented that this type of project "attracts nature nerd kids and art kids. They fulfill the obligation of drawing, but art students finally are in their element... it allows [me] to explore interesting connections in terms of what's useful for students to know." Later in this manuscript I will return to this idea as a starting point for a rhizomic pedagogy of nature.



Figures 28-29: “Kill your Lawn” comic book; Leo Politi science art exhibit.

### *Microscopes & binoculars*

Microscopes and binoculars are, in essence, tools that enable amplified sight and therefore increased ocular scrutiny of the experience and knowledge embedded in environmental education. In both public and private programs, binoculars and spotting telescopes, as well as microscopes and magnifying glasses are critical tools provided for nature learning and exploration in the LAAS programs. In fact, the 1<sup>st</sup> Saturday of the month Open Wetlands event centers around such tools, and ads state that “binoculars will be available to borrow, and volunteers will help visitors view aquatic invertebrates through microscopes, learn about the unique ecosystems found at Ballona, and view birds through powerful spotting scopes along Ballona Creek.”



Certainly, students are most excited to receive their borrowed binoculars, as many in the tours I observed had never used them before. Whether used to magnify up-close or at a distance, in a teacher evaluation survey binoculars and microscopes were the most-frequently cited feature that teachers found most relevant and perceived their students to be most excited about. One schoolteacher remarked that her students who participated in the LAAS program “also enjoyed being able to just stand on the platform and use their binoculars to spot animal life (and death - they spotted a dessicated rabbit)” ([sic] survey). Interestingly, in the student surveys these tools were the least cited. When asked what they enjoyed about the tour, the majority of student responses referred to having fun, drawing, being outdoors, learning about new plants, and being “adventurous.” By focusing on being outdoors and having fun, rather than on learning microscopes or the anatomy of amphipods, student responses demonstrate the ways in which the tools are in effect only memorable as ways to access a richer environmental experience.



Figure 30: Composite of student activities  
*Examining a dead bird with binoculars. Array of compasses and binoculars for student use. Examining and sketching tidal biota.*

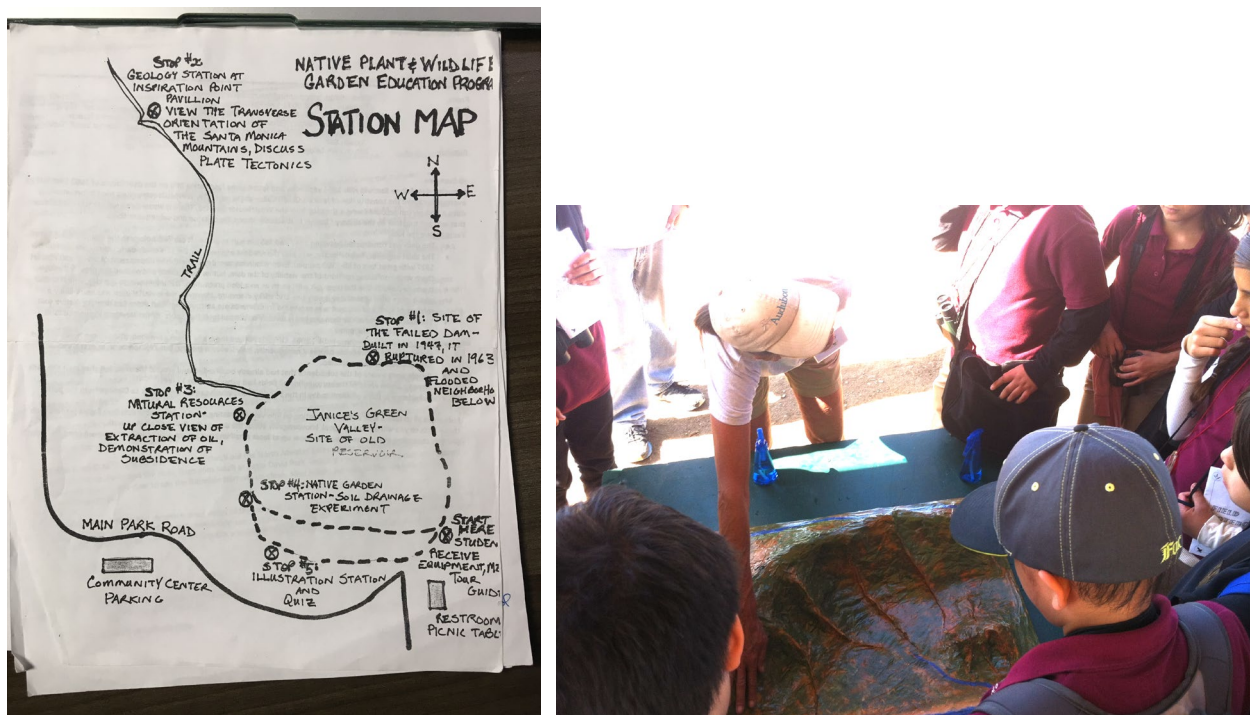
## *Compasses & maps*

The parallel use of compasses and maps reflects a perception of knowledge wherein “knowledge generated through movement from place to place within a region is presented *as if* issued from a totalising vision above and beyond the world” (Ingold 2000, 230). While maps are convenient tools for spatial orientation, they are fundamentally designed to identify the space between two or more locations. Further, as with all technologies of representation, they are culturally embedded; maps differ by culture, purpose, and even by person. Thus, maps are a spatial but also political tool that at once marks the boundaries of a space, but also what can occur within it.

They lay claim to space, demarcate inclusion and exclusion, and work to rationalize spaces that are infinitely more complex than what is represented on a map. Historian Thongchai Winichakul wrote an influential study on the role of the “geo-body” in national building, wherein mapping is constituted as a “prime technology of knowing” (1994). They are a tool used for understanding the landscape, and the life that inhabits it. Depending on the kind of map, in its most simplifying use it can flatten the social, political, and biological diversity of a landscape. Yet, maps can also give voice to stories that may have been smothered by the layers of time.

Maps in all their complexity popped up again and again during my research. Sometimes scientific, sometimes narrative, sometimes descriptive, these maps all served to enable a deeper understanding of the surrounding environment. At the Natural History Museum of Los Angeles, “memory maps” are used in their Nature Lab so that residents can visually and spatially describe their urban nature experiences. In fact, the students at Leo Politi, the first LA Audubon partnered school to receive a schoolyard habitat, created a map that is currently on display at the museum. They remind me of the story maps produced by the Mapping Indigenous Los Angeles project

through UCLA, or Keith Basso’s examination of place-making as a cultural activity and efforts to map the “place-worlds” of the Western Apache (1996). At Kenneth Hahn, LAAS docents are provided with a station map marked with key locations of the tour. However, the map doesn’t just number the stations, but it also provides a description of the main activity, even including historic events and dates such as the dam failure written directly on the map. In doing so, the map is less a two-dimensional representation of the park and tour route, and more a story of what happens at those locations during the tour, and even into the past, much like the maps of Apache place-worlds.



Figures 31-32: School Tour Station Map & Watershed model, Kenneth Hahn SRA

At the LAAS Summer Camp program at Kenneth Hahn State Recreation Area, maps are in fact the culminating product of the week. Students spend the week exploring the park with tools including compasses and binoculars, and learning about plate tectonics, the food chain with a

focus on invertebrates, and pond ecology. Then, participants must “tie it all together by creating [their] own maps.” This process of personal map-making weaves the student’s own experience of camp components in with the landscape, both what lies beneath it in the form of tectonic plates, and the life that lives upon it. It creates a representational image of the web of relations that they have personally experienced. Compasses organize and rationalize the landscape, but they also can act as tools for situating and anchoring oneself within their surroundings. To enrich this work, environmental education programs should work towards expanding the underlying epistemology that guides how they are used to interpret the world. That is, there is space for their use in cultivating a more relational and emplaced environmental knowledge and experience.

For example, for Director of Environmental Education at the LAAS Stacey Vigallon:

“Everything hinged on the compass. Having that super low-tech tool that is a genius creation by humans totally changed the way I view the landscape. If you’re in the Baldwin hills and you’re a city kid, and you suddenly understand where you are on Earth, that changes your perspective, you’re like oh the ocean’s over there. You don’t just wander around the grid with no direction. My house is between the ocean and the mountains. For me that instantly puts you on the earth. If you’re forced to know where you are on the earth with this little device, it forces you to think about yourself on the earth, and your actions aren’t disconnected anymore. It’s where are you right now, and where is everything else in relation to you” (interview). While compass use is about rationalizing the landscape into a grid, it can also be used to broach questions of relationality” – interview with Vigallon

The friction of objective inquiry-based science as counter to yet in service of an intimate nature encounter is repeated over and over throughout the environmental programs. Students understand birds as living creatures by comparing great blue heron wingspans against their own height and peering into their nests with spotting scopes. Microscopes tell the story of the micro-biota in the tidal channels, bringing to life narratives of the food web explored in class. Scientific illustration

engages students artistic and representational abilities, helping them notice the variety of flora around them through the act of drawing. Actively using compasses on hikes through the landscape teach students where they are in relation to their homes, the city, and its natural spaces. A discussion about the life cycle ensues when students stop to examine a desiccated rabbit. The generative power of these moments of friction can be amplified through attention to two alternative epistemologies whose integration is important for the social justice imperatives of urban environmental education programs.

### **Expanding the epistemological frame**

The fields of Science and Technology Studies and political ecology have helped uncover the profoundly situated nature of scientific knowledge and expertise (West 2006, Whatmore 2009, Jasanoff 2012, Callon 1984). In a study of elementary science education, Bang and Medin point out that despite focusing on diversity, educators too often “assume[d] that science and science learning are acultural” (2010, 1008). I have found the same to be true in the non-profit environmental education programs I studied, where science was presented as what Outdoor Education Director Cindy called a “doorway to wonder,” an entry to environmental interest because “if you have the scientific facts, it hits you how connected and amazing [nature] is.” In these ways inquiry-based scientific knowledges influences the form and content of environmental education programs, both internal and external to the formal school system. While the democratization of such knowledge is valuable, it is important to examine how these unproblematized knowledges and technologies often disempower subjugated groups by

characterizing their epistemology and knowledge as “nonscientific, tradition-bound, overly risk-averse, shaped by superstition, or simply biased” (Goldman et al. 2011:9).

Many urban environmental education programs straddle a precarious line between objective science and subjective experience to “inspire wonder, discovery and responsibility for our natural and cultural worlds” (as described at a NHM Nature Garden docent training session). Capitalizing on this balance between subjectivity and objectivity can open the door to empowering subjugated groups by integrating their pre-existing epistemologies, couched in broader recognition of the structural inequities that often impacts these worldviews. To achieve underlying social justice imperatives, I therefore suggest programs push further into those precarities and spaces of generative friction to incorporate a more situated epistemology. Employing a political awareness of structural inequities to re-center and valorize local/community-based knowledges could thus diversify inquiry-based science through a place-based and social justice-oriented approach. It is important to note that knowledge is different from epistemology; epistemology describes and justifies ways of understanding and constituting knowledge (Alcoff 2006). It necessitates not only being present in a place, but also bearing witness to the narratives of past, present, and future inscribed into the landscape of both people as well as science. Teaching about nature and environmental stewardship values almost exclusively through inquiry-based science methods also risks “perpetuat[ing] the modern myth that science and technology provide the most effective means of restoring the environment” (Bowers 1999, 161).

Though science-based environmental education increasingly emphasizes a knowledge of place, privileging a science and technology approach through a focus on topics like restoration and ecosystem monitoring unfortunately only tells one part of the story (Bowers 1999, 165; see also Bowers 2001). For a truly place-based and diverse (gender, race, class, belief) approach to environmental education and subsequent stewardship, it is important to use the generative moments to bring to light the subjugated stories, knowledges, and experiences of the diverse peoples of that landscape. I therefore show how attending to local and community-based knowledges can help move programs past the embedded science/experience tensions by giving voice to subjugated urban nature experiences that are both personally relevant and scientifically valid as ways of perceiving reality. Secondly, it is important that environmental education programs re-center the indigenous story in the urban American experience (Haig-Brown 1995). Doing so can more deeply democratize inquiry-based science in the service of environmental education, cultivating a socially aware, historically situated, and personally relevant sense of place and urban environmental stewardship.

### ***Re-centering Tongva knowledge***

Indigenous and TEK knowledge have been at the forefront of scholarship into subjugated epistemologies and knowledge production, especially as it relates to the environmental sciences. Scholars increasingly acknowledge the relevance and value of indigenous knowledge, and their differences from inquiry-based epistemologies (Barnhardt 2005; Cruikshank 2014; Deloria and Wildcat 2001; Eijck and Roth 2007; Goldman et al. 2001; Kawagley 1995; Medin and Bang 2014; Nadasdy 2005). Bang and Medin (2010) offer a treatise on the cultural foundations of epistemology, seeking to “remove the implicit valuing of Western modern scientific ways of

knowing over all others” (1015). Their prior work argues this point, demonstrating the epistemological differences between European American and Menominee (a Native American tribal group in the mid-west) groups: the Menominee frameworks focused on relations, context, a view of people as part of nature, and incorporating spiritual practices, with the European American approaches as more goal-oriented, framing nature as an externality or as the background to human activity (Bang, Medin and Atran 2007). Programs could take inspiration, without appropriation, from such integrationist frameworks to better situate the narrative of people who have historically been and continue to be present in the creation of the local landscape of urban Los Angeles.

As with inquiry-based science, it is important to recognize that “indigenous” epistemologies are not universal or monolithic. Such an approach risks reproducing the romanticizing narratives of Native American as being *historically* more “connected” or “in tune” with the environment.

Mishuana Goeman (2013, 28) explains this nicely,

Describing Native relationships to land is riddled with pitfalls and paradoxes, many of which are impossible to avoid given the nature of power and colonialism. I do not take the phrase “relationship to the land,” as a given, unchanging, and naturalized part of Native American identities, especially as capitalism and colonization have produced new ways of experiencing time and space. . . . On one hand, Native relationships to land are presumed and oversimplified as natural, and even worse, romanticized . . . Respecting the environment is not encoded in the DNA. In fact, tribes have experience many travesties of justice in regard to environmental destruction. We also have a tendency to abstract space—that is to decontextualize, commodify, or bureaucratize—when the legal ramifications of land or the political landscape are addressed: too often we forget that reservations, resource exploitation, federal Indian law, and urbanization are relatively new phenomena. The stories that connect Native people to the land and form their relationships to the land and one another are much older than colonial governments . . . Stories create the relationships that have made communities strong even through numerous atrocities and injustices



Always in a desire to emphasize the local (people and nature) in EE programs, educators should intentionally re-center indigenous histories and stories within environmental education in settler colonial societies. It is true that most students, given the demographics of Los Angeles, are not Native and therefore do not have embodied indigenous knowledge of the landscape. Integrating the indigenous story in this context is less about community knowledge than a political acknowledgement of the indigenous history of the city and landscapes and residents that we live in and among. There are several areas in the programs I studied where this approach already has taken root. The very presence of thatched huts and representational ki'iy, while in some ways problematic, also points to recognition of indigenous presence. Ki'iy are made of Aroyo Willow branches, curved into a dome shape and thatched with tule grass, a bulrush found in freshwater habitats. These structures are a nod to the Tongva *past* of the Ballona landscape, and primarily refer to Tongva use of natural materials to construct their shelters. Girl Scouts are frequently thanked for their generous work in building these scaled down and abstracted ki'iy.<sup>69</sup>

The storytelling device within the ki'iy at Ballona Discovery Park uses recorded stories told by Tongva volunteers so that presence is not only seen, but also heard. While I don't want to essentialize indigenous epistemologies of being "in relation with" the environment, I do want to recognize the knowledges that are produced from this kind of worldview that may be different from taking an exclusively scientific-inquiry approach. Also, more fully integrating the indigenous experience is a way of recognizing local environmental stories, and recognizing the continued presence of Tongva people in Los Angeles. Expanding on these tentative efforts by

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<sup>69</sup> See Anna Willow's (2010) discussion of Scouts and "playing Indian"

inviting Tongva speakers at docent training, alerting participants to exhibits like Art @ Tongva or Made in L.A. that incorporate native artists, or informing schoolteachers in Teacher Training about on-going conflicts over repatriation and land development goes a long way towards political recognition of indigenous people.

In a BBC Newsnight film, prize-winning landscape and nature writer Robert MacFarlane laments the inability of today's children and adults to name the plant and animal species living around them, arguing that names and the ability to identify species matters is tied to the decline in biodiversity more generally. He remarked that “names, good names, well used, help us see, and they help us care. We find it hard to love what we cannot give a name to, and what we do not love, we will not save” (MacFarlane 2017). His approach is an interesting integration of emotion and human-nature relationships, along with emphasis on documentation and identification so common to objective inquiry-based scientific nature learning. This specificity of local knowledge, and the ways in which it can create, over time, a relationship with the surrounding landscape echoes research on some indigenous epistemologies (Barnhardt 2005; Deloria 1973; Nadasdy 1999) and is a kind of science that I seek to promote in environmental education.

Similarly, in their analysis of worldviews among the Menominee Indians, Bang et al. (2014, 48) argue that “using pedagogical language like ‘plants that people have lost their relationship with,’ ruptures the epistemology of the zero point, because it begins to always see ontology and epistemology and refuses a settler colonial narrative of and relationship to land.” Education programs show hints of this approach, introducing relational knowledge in the form of the food chain, or of the impact of an individual's action on the environment, both of these framework

position people outside nature. Either nature's relationships exist on their own, or humans are an external force that destabilizes these relationships. In some ways, teaching objective inquiry-based science outdoors challenges a more traditional emphasis on "compartmentalized knowledge that is often decontextualized and taught in the detached setting of a classroom or laboratory" (Barnhardt 2005, 11). In another article, these same authors highlight how the materials "had no human represented in ecosystems – this absence is emblematic of the nature/culture epistemic divide in Western ways of knowing" (Bang, Medin, and Atran 2007, 44). A more intentional integration of the settler colonial underpinnings of American relationships with land and nature, and settler colonialism as an ongoing project of indigenous erasure and land acquisition might foster a richer and more dynamic set of environmental epistemologies.

The literature has primarily focused on the interplay of settler colonialism and education in the context of indigenous or traditional ecological knowledge (TEK). Scholars of indigenous knowledge have been quick to point out that they too possess "scientific" environmental knowledge, but that because it "does not conform with formal aspects of the 'standard account'" it is ignored (Snively and Corsiglia 2000, 6; see also Cruikshank 2014; Nadasdy 2005). Weatherford (1988) argues that though they often use a different vocabulary, indigenous knowledges have and continue to contribute to disciplines such as astronomy, biology, anthropology, pharmacology, agriculture, among others. I warn that such a framework is equally risky because it speaks of indigenous knowledge as *contributing* to science, devaluing it by evaluating it only in terms of its worth to that type of science. Incorporating the *local* indigenous knowledges and histories alongside (instead of as a contributor to) the science embedded in

environmental education is an important way to expand such discourses, illustrating the diversity of nature epistemologies, as well as uncovering the local (indigenous) practices that have been smothered by settler colonial structures.

Indigenous nature knowledge and practice too often is either essentialized into a harmonious relationship with nature, or criticized as representative of indigenous selling-out to capitalist society. Thiele refers to the Defenders of Wildlife's gross oversimplification that separates of Alaskan natives into "Corporate Natives" and "Subsistence Natives," (1999). Essentializing their culture from an outsider's perspective, without regard to how the community perceive their own practices. Further, such actions do nothing to acknowledge the lasting effects of settler colonial practices of cultural erasure and land seizure to these groups' continued survival. Western environmental organizations have taken it upon themselves to "help indigenous peoples assert, build upon or rediscover these [organic] ties [to the land]" (Thiele 1999, 162). Though potentially beneficial, if not community-based such efforts can also be indicative of the continuing essentialization of indigenous culture and what mainstream environmentalism considers appropriate environmental action. It is akin to the tenuous "political-ideological middle ground" based in "assumptions about the Other and what the Other can contribute to specific goals" (Conklin and Graham 1995, 696).

### ***Local knowledge***

In their study of integrating inquiry-based science into native reality in Alaskan indigenous communities, educator Robert Barnhardt and anthropologist Oscar Kawagley argue that "all learning should start with what the student and community know and are using in everyday life"

(1999, 119). In Barnhardt and Kawagley's project, they would first explain river eddies by pointing out currents, debris, the paths of fish, and then use that narrative context in which to situate objective scientific terms such as velocity, resistance, and tide tables. Their research, though focused on the indigenous context, can be readily applied to the community-based knowledges of subjugated groups in urban Los Angeles. Drawing attention to the gap between dominant inquiry-based scientific analyses of local ecology and subordinate experiences of local landscapes creates an enriched intersectional space from which inquiry-based science knowledge can be explored through a localized community-specific frame. If integrating indigenous Tongva knowledge and stories of the urban landscape helps re-center their experience in the making of the city, doing the same for other non-dominant minorities can cultivate a more diverse and relevant form of urban environmental education.

The LAAS school-shed methodology is a prime example of how this might be achieved. In the recently written Strategic Plan, the school-shed concept "captures science curricula for urban youth through experiential learning at the high school and community college level. These students use their experiences and are guided to develop curricula and teach within our elementary and middle school programs within the urban core" (Strategic Action Area 3, LAAS). What drives the school-shed model is the desire for intergenerational learning, akin to more traditional community-based approaches to cultivating environmental knowledge.

Similarly, the Teacher Fellowship Program shows teachers how to use their classrooms and schoolyards to teach about nature, and through the installation of schoolyard habitats. Though such efforts are framed as less ideal variants of education in "wild space," they are important initiatives in giving kids more access to green spaces, as much to learn about nature as for their

physical and mental well-being. It attempts to integrate the consistent being-in of a place contributes greatly to one's attachment to it, and consequently one's desire to fight for it.

Schoolyard habitats are yet another attempt at engaging local knowledge in environmental education efforts. At Leo Politi, an elementary school in east LA, in 2009 the LAAS received US Fish and Wildlife Service funds to install a native habitat on a portion of the school yard. The yard has grown significantly since its installation, and the LAAS prides itself on the integration of the habitat with the curriculum. The brochure describes how “teachers, students, families, and volunteers work together to care for the habitat. Birds and other wildlife have begun to return, and students are able to observe, learn about, and enjoy nature every day at their school.” While this may have been true in its early years, former Principal Brad Rumble is quick to point how important (and difficult) it is to get teachers to become invested in the habitat. He recently explained that without teacher investment, and a way to incentivize that investment in spite of the pressure to teach-to-the-test, the habitat is left neglected (casual Board conversation). Such problems are also raised by Rue Mapp, founder of Outdoor Afro, who critiques programs that “never mind their parents, their grandparents, people who could be contributors” to the content (Mapp 2014, 77).

Similarly, President of the Board Margot Griswold echoed that many schools come to her requesting schoolyard habitats, some of which already have one or more habitats or gardens that are neglected and under-used. This brings us to the impact of the built environment on the local knowledge and experience of urban communities with nature. While the funding for extensive tree canopies, native landscape, and water features (not to mention backyards the size of small

parks) exists in wealthy neighborhoods, conversely the lack of funding and political power has a significant and more noxious effect on densely packed low-income minority neighborhoods. Scholars working at the intersection of urban ecology and environmental justice have extensively shown how the built environment has a significant impact on nature access, experience, and knowledge (Larson et al. 2009; Nelson et al. 2006). Consequently, if the school community is not demonstrating long-term involvement in the garden, it indicates a lack of alignment of the garden with the school, teachers', and most importantly community's lived experience as well as values.

Educators should intentionally familiarize themselves with the community and their beliefs and practices, situating these within the social inequities driven by power hierarchies that are themselves laced with institutionalized racism and the unequal distribution of wealth. It is necessary for educators to become advocates for the communities they work with, using cultural competency skills to recognize the pre-existing lenses and constraints participants bring to the program, and then creating the space to put these into conversation with inquiry-based science epistemologies. Certainly, this is hard work. Yet it is necessary if environmental education programs are to achieve their goals of social justice and developing a more inclusive and situated environmental education that is “about and for sustainable ecological relationships to place” (Cajete 1999, 189).

Indeed, some scholars point to the ways in which even so-called Western students have what can be called folk knowledges, or “place-based knowledge of human-environment relationships, processes, and interactions” (Zanotti 2012, 160). Importantly, these “personal experiences,

passed down generational knowledge, local sayings, and other folk ways of learning and knowing about the environment” may not always align with the political desires embedded in environmental education efforts (Zanotti 2012, 160).<sup>70</sup> As a subjugated knowledge, local knowledge does not “aspire to dominance [but rather] is formulated as local not just in terms of the range of their content but also in terms of their structure” (Alcoff 1996). This approach therefore advocates for the increased recognition of “learning-in-context,” that is, knowledges developed during the processes of everyday life (Zarger 2011). That is, Western students have their “commonsense understanding of the physical world; that is, their ‘traditional’ science” or what I would call local knowledge that differs from inquiry-based science data and narratives (Snively and Corsiglia 2001, 26). Applied to environmental education, it opens up the possibility for both culturally-informed as well as non-inquiry-based local knowledges that are equally valid and can play a critical role in developing youth’s informed and ecologically aware attachment to place. One way to valorize and integrate these folk knowledges into environmental education alongside inquiry-based science is through intergenerational learning.

## **Conclusion**

The precariousness of science as it is implemented in environmental education can be further problematized by attending to attendant political structures and social injustices, and a lack of

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<sup>70</sup> Some even argue that objective inquiry-based science is in fact a subculture science that requires “border crossings between students’ lifeworld subcultures and the subcultures of science” even within a “Western” culture or community (Snively and Corsiglia 2001, 25).



attention to these issues hinders desires to reconnect education to a sense of place (Orr 1994).

The subjugation of non-scientific relational or locational epistemologies also points to racialized experiences of nature; recognizing this fact “open up possibilities for understanding the schooling experiences of Afro-Latinos, for example, in new and different ways” (Lapayese 2009). Rather than focusing on individual responsibility for environmental knowledge and change, programs could valorize community knowledge and encourage youth to critically understand and integrate these knowledges. In so doing, they can create a “third way” for education of and within minority communities that is neither about assimilation or resistance, but rather a kind transformative community flourishing (Cowles 2005).

Specifically, African-American experiences with gentrification in the urban core could be integrated to consider how these shifts may have altered their perception and interaction with urban nature (Byrne 2012, Finney 2014). Or, often Latinx community practices such as shared gardens or park use for family barbecues could be integrated into a basic framework from which to approach nature learning. For Latinx communities, these are safe spaces to connect with each other and with bits of their homelands (Byrne 2012, Hondagneu-Sotelo 2014, Low 2011). Thus, it is critical to consider not only where students are coming from, but also how that intersects with new and reclaimed knowledge being presented to them. It is to the intersectionality of race, community, and place-making that I now turn, by demonstrating how the specificities of Black Angeleno nature place-making can contribute to environmental knowledge and practice.

## CHAPTER III: FEARFUL EXPLORERS

*“From this winding path, you can see three very different communities of plants and animals. Run your fingers through the sands of the Coastal Dunes, search the expanse of pickle weed stretching into the distance for birds that hover or those that sit and wait on the Saltmarsh, and see the deep greens of the willows and other riparian plants that shelter creatures in the Freshwater areas. The wetlands are waiting...” (Ballona Wetlands poster)*

### **Introduction**

Guided at least in part by epistemological orientations around scientific inquiry and documentation, activities like bird watching, tyke hikes, and native plant scavenger hunts are rampant in environmental education. A year-long study of the services provided by Nature Centers, environmental organizations, and Parks confirms this epistemological focus, emphasizing these activities as key features of member and volunteer involvement. Nature walks are key to getting in touch with nature as they provide an up-close-and-personal experience in the outdoors, supported by scientific tool use. Such walks, and similar practices like Scandinavian “forest schools” seek to avoid the “extinction of experience” or loss of intimate, individual contact with wildlife so widespread in contemporary inquiry-based culture (Pyle 1992, 65). It can be argued that this loss of contact is due to the ecological loss of biodiversity worldwide, in addition to the way modern (particularly the industrial West) culture and lifestyles have shifted indoors, sparking the growing incidence of what Richard Louv famously named the “nature-deficit disorder” (Louv 2010).

In educational theory, philosopher Marjorie O’Loughlin argues “we have tended to accept that the body will be absent in our accounts of the construction of human knowledge” (2006, 16). Public perception and experience of formal education, particularly of the hard sciences, tends to

reflect this belief (Osborne et al. 2003; Sjøberg 2002). Referencing Foucault, Bresler explains how the moving body in a school setting is typically seen as disruptive. He continues, saying that “school disciplines... target the mind and cognition, ignoring the body at best and subduing it at worst” (Bresler 2004, 237). American education, as enshrined in the institution of schooling, constructs subjectivities and disciplines bodies through the power of state-sponsored, socially reproduced discourse (Foucault 1977). Children’s bodies are ‘trained’ from a young age to behave in certain ways in the classroom - standing in line, raising one’s hand, sitting in assigned seats - and their movements constrained by the physical design limitations of schools.

These perceptions and confining experiences persist despite work by influential thinkers like John Dewey, Jean Piaget, Lev Vygotsky, and Jerome Bruner advocating a move away from the Cartesian dualisms of mind and body in favor of a social constructivist framework (Gandini 1993). This framework theorizes that knowledge is co-constructed through interactions with the environment, such that children produce as well as acquire knowledge, similar to the way in which anthropologists have theorized the co-production of nature (Braun 2002; Cronon 1996). Later progressive early twentieth-century educators Maria Montessori, and Rudolf Steiner, and the Reggio Emilia schools took that resistance to another level, creating experiential and play-based learning environments in early childhood (Dodd-Nufrio 2011; Edwards 2002).

Contemporary classrooms are increasingly reflecting this transition, incorporating active learning spaces, group workstations, and more choice in activities, especially for younger children.

Certainly, fieldwork in sciences like geology, biology, and botany are a critical component of their methodologies of knowledge production. Here though, I am interested in adding a layer of intimacy, shifting the narrative of field science and experiential learning to include the sensory

body and emotive learning (Alsop 2005; Grover 1996; O’Loughlin 2006). Environmental education programs are a particularly productive space in which to explore these questions, and build on the already experiential (i.e. acting in the world rather than a lab) elements of certain scientific disciplines. These programs demonstrate a precarious balance between the rationalizing orientations of the scientific method and an embodied experiential emphasis of outdoor education. To stabilize this interplay, I recommend more explicitly calling upon the body as an alternative tool to the scientific method form of ecological inquiry.

Programs like those of the LAAS tend to follow nature interpretation principles to achieve their goal of teaching students and docents about nature and cultivating environmental values. To interpret nature, National Park and Nature Preserve staff “translate historic, cultural, or natural phenomena to increase audience understanding and enjoyment” (Knudson et al. 1995). At a docent training session, the Head of the Madrona Marsh Nature Center Tracy Drake presented on the objectives and mechanics of environmental interpretation. She provided a handout explaining that environmental interpretation was about more than giving information; the main goal was not to instruct, but to *provoke*. To do so, the five nature interpretation principles included “Get them outdoors first; The experience should be personal, science-based, inquiry-based and interactive, and lead to conservation action.” This level of interactivity exists in tension with the traditionally rigid and primarily cognitive approach to science learning in schools. Drawing on nature interpretation principles, the ultimate goal of most environmental education programs then is to cultivate future stewards through experiential science education. The tenuous balance between cognitive science and experiential meaning is seen in the dual approach to outdoor environmental education.

In this context, this chapter explores the physicality of nature learning and the attendant narratives and expectations of environmental experience that exist in generative friction with inquiry-based science epistemologies, situated within broader social justice imperatives and a settler colonial nature approach. Outdoor science-based environmental education activities like scientific illustration, place-making through compass use, and encounters with microscopic life in its own habitat enrich the more sterile traditional science of the lab or classroom. They work to merge the “cold hard facts” that inquiry-based science has illuminated about the natural world with a more personal, and thus subjective, encounter with nature. I begin by looking at the focus on embodied movement as an underutilized pedagogical tool in the execution of environmental education programs, showing how the actual ‘learning’ of nature content is not necessarily cognition-focused moments. Continuing with the theme of embodied learning, I show how expectations of discovery and exploration in nature learning that recall settler colonial narrative tropes.

### **Conquering the wilderness, sort of**

As Kant insisted long ago, “there can be no doubt that all our knowledge begins with experience” (1950 [1787]: B1). One would expect outdoor nature learning, especially those that rely on exploring a landscape, to celebrate the body, its movement and senses, and the overall experience of nature. And yet, especially for science-oriented programs, this is not the case. Instead, the body is primarily seen as a vehicle to transport the mind to places where learning can occur, immobilized. Although physical senses and emotion are occasionally called upon to heighten the experience, these efforts are usually correlated with the interstitial segments of nature exposure, rather than the prescribed moments of static learning. Outside the classroom, in

a forest or in a park, nature learning experiences navigate between structured and unstructured moments. While the structured learning<sup>71</sup> is codified in government-defined curriculum plans and standards, and reinforced in the non-profit sector through organizational dependency on government-sponsored grants, the very nature of the outdoors creates spaces for spontaneous and experiential learning moments.

As corporeal beings it is through our bodies and liberty of sensory engagement that we create, acquire, and transmit knowledge. As Bowman remarks, “all human knowledge draws its sustenance from corporeal roots” (Bowman 2004, 30). Similarly, Juhani Pallasmaa’s meditation on architecture offers the following: “I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other. I dwell in the city and the city dwells in me” (Pallasmaa 2005, 40). If knowledge and learning are fundamentally embodied, what forms does this take in programs that are perhaps the most exemplary of embodied learning - moving through outdoor landscapes to access nature knowledge? It is to this question of the body, and consequently, the physical experience of nature learning that I now turn. Embodied learning accentuated by emotion and affect present a microcosm of the cultural politics of urban nature in America. In exploring these themes, I seek to show how attending to the body can provide a more nuanced and situated form of nature learning.

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<sup>71</sup> That said, there are contexts wherein the learning is not controlled - these often run in parallel to and outside of traditional pedagogical structures. For example, more and more contemporary schools (especially liberal, child-centric, private institutions), as well as alternative schooling traditions like Montessori and Waldorf try to give more bodily freedom to children, slowly shifting away from this disciplinary history. The wildschooling movement and Scandinavian forest schools are further informal and formal iterations.

Conceptualizing learning as process comes from Dewey's principle of continuity and David Kolb's subsequent definition of learning as a continuous emergent process where knowledge "is continuously derived from and tested out in the experiences of the learner" (Kolb 1984, 27). Analytically, I draw on Bowman's bodily interpretation of learning-as-process<sup>72</sup> to consider how "knowing in any humanly meaningful sense is emergent from and grounded in bodily experience and continuous with the cultural production of meaning" (Bowman 2004, 48). This enables me to examine the moment-to-moment processes and experiences<sup>73</sup> of the tours as rich sites wherein meaning and knowledge about urban nature are produced. This is particularly relevant in outdoor nature education if we follow Marchand's<sup>74</sup> argument that "knowledge-making is a dynamic process arising directly from the indissoluble relations that exist between minds, bodies, and the environment," that is "an ongoing process shared *between* people and *with* the world" (2001, S2, S1).

### ***Restricted trail wayfaring***

Spending hours walking through a natural landscape teaching students about nature, one cannot help but notice the visceral reality of movement as part of the learning process. Ingold argues we should "acknowledge that scientific knowledge, as much as the knowledge of inhabitants, is generated within the practices of wayfaring" (Ingold 2011,155). As the "fundamental mode by

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<sup>72</sup> This approach comes out of phenomenology's interest in lived experiences as we move through the world (Csordas 1994; Jackson 1996; Merleau-Ponty 1964). See also Ingold 2000 for analyses of making rather than transmitting or acquiring knowledge.

<sup>73</sup> Experiential learning has been taken up in education literatures, but primarily in the domain of adult learning (Dewey 1938; Kolb 1984).

<sup>74</sup> Others like Ingold (2001) and Lave and Wenger (1991) instead emphasize enacted practice that merges the mind with the body and the world. See also Harris 2007.

which living beings inhabit the earth,” wayfaring can expand on a scientific knowledge baseline to incorporate personal knowledges of place through history, memory, and experience as key to finding one’s way (Ingold 2011, 12). Finding one’s way and ascribing meaning to that process is fundamental to the production of place-based knowledge. Linking back to science as perception, Ingold argues that people understand or rationalize the world through culture as well as through individual experience in order to cultivate “an understanding that proceeds from a notion of the mutualism of person and environment” (Ingold 1992, 40). As multidimensional movement, wayfaring presents a powerful tool for cultivating environmental sense of place. Importantly, the Ballona wetlands aren’t really visible except at a distance from Culver Boulevard, or from a bike path on the other side of Ballona Creek. From these vantage points, to passersby the wetlands appear a flat, dreary past of dried bushes, a trickle of water, and few large birds. It is only by wayfaring, or sensorily moving through the landscape that you begin to notice the details and how they change over time, making a connection to the place possible.

Ingold argues that the way forward is to consider how scientific knowledge is itself constituted not through static experiments and observation of data, but rather through wayfaring. Yet, I found that the tours did not fully capitalize on embodied movement in learning. For the science-focused programs I observed, scientific knowledge was separated from the embodied experience, distributed at the points in between the movement. In the Friends of Ballona program focused on emotive connectivity, the physical experience was emphasized while remaining dissociated from learning. What follows is an excerpt from my field notes, illustrating the embodied learning-as-process of a Kenneth Hahn school tour:



A hot Friday morning in April, 15 or so (one-quarter of all the students present that day) 6<sup>th</sup> grade students from a Culver City school trudged up the hill at Kenneth Hahn State Recreation Area. They complained about how hot it was, incessantly asking what time it was in order to figure out how much time they had left until lunch. For the most part the other docent leaders and I ignored them and continued onward. We repeatedly admonished them not to run and to stay on the trails, lest they fall into the prickly pear cactus or go tumbling down the hillside. Finally we reached the top and the vantage point we wanted them to see. “Can you see those hills? Can you find the Hollywood sign?” After much debate it was decided we could in fact see the Hollywood sign. Someone shouts, “I can see my house!” They can’t really, but the boy seemed proud and excited by saying so.

Then we asked them to turn around. What’s out there? “The ocean!” one 12 year old exclaimed. “Good!” the docent said. “Now you see that wide, flat area? What is that?” asked the docent. “A freeway?” another student offered. “No, that’s Ballona Creek, and the Ballona Wetlands.” Many of the students have also been to the Wetlands on school tours as well. We don’t point out the dozens of oil derricks and roadways for natural gas trucks, not to mention the homes, streets, telephone wires, lightposts, etc. that dot the landscape between where we stand and the ocean.

This teachable moment took place on the Western ridgeline of Kenneth Hahn State Recreation Area. The group, led by a volunteer docent (usually an SMC or Dorsey High School student), along with myself and a couple of parents were on their second stop of the 2-hour Audubon tour. First we stopped at the Natural Resources Station, a spot on the edge of the Bowl – a grassy basin dotted with scrub oaks that was once the L.A. Reservoir before the dam broke – where a station docent waited, surrounded by pleather pumps, a water jug filled with packing peanuts, water, and a model house, and assorted other plastic goods. Here is where students learn about oil and plastic and subsidence and trash in the ocean. The station was positioned in front of a panorama of active oil derricks, which were used as a backdrop for an explanation of how oil is extracted from the earth. However, the history of the oil field, and the current debate around its impact on residential house damage and subsidence remains unaddressed. Once the 15-minute presentation ends, the students are asked to take out their compasses and identify which direction we’re facing. After some debate, most figure out that we’re about to head Northwest.

After identifying the Hollywood Hills and Ballona Creek, the group continues to the third stop on the tour, the Geology Station, at a little gazebo with welcome shade. There is a small bench; students are told not to sit down so they can stay focused. We then gather around a large topographic map of California laid out in the dirt, and held down with rocks. We learn about tectonic plates and the Newport-Inglewood fault. The students are told they are safer standing in the Baldwin Hills on the Newport-Inglewood fault than on the street or their houses or schools. This immediately sets them off into nervous exclamations and questions – “oh my god it’s an earthquake!,” “is there going to be an earthquake

right now?!,” “what if a big crack opens?”. The last stop of the tour is the Habitat Garden, where students conduct drainage experiments on the different soil types - sand, and clay - making hypotheses, timing draining, and discussing the results and their relationship to the plants that thrive in those soils.

These notes describe how scientific knowledge was dispensed at pre-determined Stations, while embodied knowledge was more explicitly and actively leveraged to support in-motion trail experiences. The observed tour is typical of the 6<sup>th</sup> grade tours at Kenneth Hahn.<sup>75</sup> Over the course of a two-hour tour, we had moved from a concave manicured grass field dotted with trees and gopher holes, to a hard clay trail meandering through elderberry bushes, prickly pear cactus, and grasses drying in the sun. From there we continued to a wider dirt trail bordered by stunted pine trees, a cinderblock wall and radio towers on one side, and a coastal sage scrub hillside sloping downwards on the other, overlooking oil pumps, the city, and eventually the ocean. On the 10-minute walk from station to station, students chat amongst themselves, complaining of heat or hunger. They also occasionally share how fun it is, pointing out red-tail hawks they can see with their binoculars or gophers poking their heads out of burrows. Docents however, risk stifling these moments of embodied learning by reminding students to stay on the path, not touch anything, and observe nature with their eyes and ears only. In this way, immobility rather than mobility becomes necessary to learn, when in fact theorists like Tim Ingold show the value of learning through the movement of wayfaring. At one time, students were provided field notebooks to scientifically record their observations during the tour. It only took 2 weeks of tours to decide to remove the notebooks from the program - students couldn't jot things down as they

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<sup>75</sup> The same format occurs in 3rd grade tours, though they didn't go to geology station, instead staying closer to the 'bowl' at KH (because they are physically less able due to distance and heat)

hurried from one Station to the next, and the books weren't used once they arrived at the Stations. Re-centering the experiential aspect of learning is a positive step towards expanding the epistemological frame.

### ***Exploration and Discovery***

A fundamental driving narrative that propels educators and students to march through the landscape is the language of exploration and discovery. By having students look from the Hollywood sign to the ocean, and move from one vantage point to the next while encountering wild life along the way, the program actively seeks to give them a sense of space, both of the natural landscape of L.A., and how to place themselves within it. This sense of space is constructed multi-dimensionally, through maps and compasses, and most importantly by walking in the landscape. This experiential aspect of wayfaring exists in a precarious friction with the rationalizing tools and discourses of objective inquiry-based scientific epistemologies.



Figure 33: LAAS Summer Camp at Kenneth Hahn looking to ocean past over oil derricks

Despite the precarious interplay between cognitive science learning and nature experience, in general the possibilities of movement are overly restricted. Acknowledging and expanding into these spaces can increase the potential power of the wayfaring already present in the experience. This is relevant because the sensory experience of the body and its actions as it moves through the landscape and encounters *wild* life, both spontaneously and through guided interaction, is critical in developing a sense of place and subjective environmental citizenship among participants (Gabrielson and Parady 2010; Turner 2011). In the outdoor education programs I studied, this process is conflicted; discourses of connectivity clash with restricted trail use and the use of scientific equipment to rationalize the more-than-human inhibits possibilities of experiential physicality of such interactions. The experience of seeing great blue heron chicks in their nests 500 feet away is experiential, yet leads to different understandings than might be achieved by touching a shed heron feather for example.

In practice, rather than emphasizing nature and science learning as students walk the trails, docents and students alike tend to rely on frameworks of discovery and exploration to describe their experience. Being an “explorer” is certainly a way to actively engage students in the program, but it also problematically relies on distinctly Western European discourses of exploration, and is also influenced by settler colonial histories of land acquisition and control. Past President of the LA Audubon Board, Dr. Travis Longcore, a geographer and historical ecologist, hinted at the importance of discovery in these programs. He remarked that “this is what we try to do in these programs - discovery, excitement, science exploration, learning, curiosity, wonder, those are the hallmarks of a good quality biological education program.”

This language has a heavy history, particularly in settler colonial societies which are founded upon narratives of exploration and discovery, to the detriment of people who already inhabited these places. It is important to unpack the relationship between these thematic approaches to illustrate the differential types of learning and experience such discourses enable. Linking exploration and discovery to science privileges a scientific approach to nature understanding, and reinforces narratives of humans' dominion over nature (Cronon 1996, Latour 1993). Further, they leave unquestioned the ways in which such narratives enabled the erasure of indigenous peoples and histories on the land. And yet, the simultaneous emphasis on wonder and excitement precariously counters these narratives and creates space for a more intimate and experiential learning. Acknowledging these precarities and teaching into and through them is necessary to fully achieve the social justice goals of diversifying science, and to cultivate environmental values that valorize local nature knowledge and experience.

As Bang et al. argue, "the challenge for place conscious educators is to create learning environments for new generations of young people that do not facilitate and cultivate conceptual developments and experiences of land that are aligned with 'discover(y)/(ing)' frameworks which elevate settlers' rationales for their right to land" (2014, 42). This is exactly the predicament of the Los Angeles Audubon Society's place-based natural science education programs. It is also the opposite yet parallel problem of programs like the Friends of Ballona, which rather than using discovery and exploration frameworks, seek instead to cultivate an emotional attachment to nature, albeit by presenting indigenous histories in an idyllic, romanticized light. Though this may seem trivial, I want to echo Mignolo and Tlostanova (2006,

458) in saying that we need a “relentless critical awareness of what guiding principles are structuring engagement in moments” such as those that occur in nature learning.

Young students make the connection with being explorers - in one 3<sup>rd</sup> grade group, upon entering the Ballona wetlands a student exclaimed “this is like an African adventure safari!” While not explicitly a settler colonial narrative, noticing such remarks enables an awareness of how narratives of discovery, exploration, and even conquest permeate our experience with and learning of nature. Docents similarly remark that the geological features of the landscape - valleys, orientation of the mountain ranges, springs and wetlands - enabled exploration and ultimately, urban development. All students use compasses to orient themselves in the landscape according to cardinal directions and man-made landmarks, gaining knowledge at the four structured stations of the tour. The discourse goes beyond student tours, and is visible even in documents and programs geared towards adults seeking nature experiences. In docent training sessions and bird walks, these terms reappear. The Bird walks advertise “Join experienced bird walk leaders who will help you explore the varied habitat in and around the greater Los Angeles area.” Meanwhile, kids and teachers alike, when evaluating the program in letters and surveys remark how “fun” it was to “explore the outdoors.” Connecting to citizen science, this language is also used to encourage people to explore their surroundings to identify and catalogue the wildlife inhabiting the nature spaces they encounter.

Though “exploration” and “discovery” are etymologically innocuous, it is important to shed light on the relationship of those terms to the settler colonial environmental histories of the United States. Specifically, I am referring to the ways in which invocations of explorer and discoverer

invoke historic practices of colonization, and attendant themes of control and dominance over indigenous peoples and their lands. By sending students out to explore, it frames the landscape as a wild frontier space that should be explored, but not lived in. Further, akin to the African safari imagined by one 3<sup>rd</sup> grader, it positions them as having the right to claim their discoveries. In a similar dominance narrative, just as young citizen scientists (in a public NHM lecture) are told that if they discover a new species they get to name it, so too are environmental education students encouraged to position themselves as having the right to improve the landscape through restoration and scientific monitoring activities.

### **Physicality of experience**

#### ***Don't touch...***

Expanding on the concept of learning through embodied movement, I also want to draw attention to the sensory element of embodied outdoor education programs. Importantly, in some ways this goes against a defining feature of settler colonial nature ideologies in that it makes nature and wilderness knowable rather than unknowable. It takes away from the element of danger and mystery so central to historic discourses of the wild frontier that must be preserved. Instead, participants are encouraged to know these spaces intimately, though only to a point - while plant life can generally be touched and, occasionally, tasted, touching animal life is disapproved of. For example, students were told “this is where we’re using our senses, we’re gonna *sorta* touch things... I’m all for hands-on... but then they [program administrators] were like no no it can get a little dangerous” (notes of tour for Baldiwn Hills Elementary). Further, the devaluation of sensory experiences echoes the modern “imagined separation between the activities of a mind at rest and a body in transit, between cognition and locomotion” (Ingold 2011, 37). The use of the

physical senses and emotions (except sight) tends to be invoked and encouraged while students walk the trails, moving from one point to the next. Strictly defined learning however occurs at pre-determined stations, or when students have stopped walking in order to view something. Learning the landscape through movement and the body therefore is at odds with stationary cognition-based scientific learning. And yet, despite this gap, survey data shows that the moments of movement actually provide anchor points for the cognitive science, pointing to *generative* friction embedded in these epistemological and experiential gaps.

One Ballona tour moment stands out clearly in my mind as an example: as students descended down a flat, slightly muddy path to pull ice-plant, many complained of getting their shoes dirty, or worse yet sand in their shoes as they navigated the path through the dunes. Though sand and mud do feature in docent discourse in ecological terms, they are not to be interacted with in a tactile way. For students, while some are interested in venturing off the path for this kind of visceral experience, for others, this distancing manifests as a fear of getting dirty. For docents on the other hand, the distancing is manifested first by liability concerns, but also, and perhaps more tellingly, Cindy once remarked to me her fear that should students go down to the tidal pools, even though it would give them a better sense of what it was like to be a shorebird, “too many students would trample everything” (conversation).

Sensory distance then, even in a program focused on experiential learning, turned out to be key, both for the form of student learning, and the welfare of nature itself. There is an obvious relationship between this distance and contemporary environmental philosophies like “leave no trace.” Indeed, if people do leave marks on the landscape, intentionally or otherwise, “they are



said to deface the environment, not to enhance it” (Ingold 2007, 85). A close friend of mine, who worked for the National Park Service once posted an NPR article about cairns left in the woods, saying “I absolutely destroy superfluous cairns” commenting that they went against “leave no trace’ principles and could even confound existing trail markers” (Sieg 2015). The 7 leave-no-trace principles are intended as best practices to reduce human impact on the natural world and lead to environmental conservation behaviors (Hampton and Cole 2003; Harmon 1997). Leaving no trace can be linked to the distancing effect of inquiry-based science methodologies that use tools to examine nature up close and privilege cognitive over sensory understanding. Outdoor environmental education programs begin to work against this issue by forcing bodily engagement with the objects of nature discovery by being physically outdoors. Further steps can be taken to more fully engage the senses: students should be encouraged to consider the different kinds of “traces” that can be left, and asked to touch and taste and smell the objects of their observation. It is possible to have an embodied nature experience without damaging the landscape; indeed, humans have interacted intimately with nature for millenia.

Beverly is one of the few docents within LAAS’ science-based program to emphasize a more sensory experience as opposed to the primacy of cognition in nature learning. She keeps a cheat sheet in her pocket of the science details relevant to each of the tour stations – vernal pond vs. tidal channel biota, bird migration habits, invertebrates in the food chain, etc. Referring to her methods, she remarked that:

“The thing that I like to do is the senses, the five senses. I like to zero in on that so they should realize that when they’re outside they can use the different senses for different things... That’s what I emphasize, and what I keep reiterating, to make them more aware of their own personal self. See that’s the human part of it... It’s them inside of this environment, it’s making them part of the environment by them interacting with it.”

For Beverly, it is critical to connect physicality with a place, and the way to do that is through the five senses. Following one of her tours, I noticed that she did indeed frequently instruct students to “put on your ears,” and “smell this plant, what does it smell like?”. This approach was not unique to Beverly; other docents similarly instructed students to “keep your eyes peeled” or to “feel the salt grass, what do you feel?” (various tours). Their efforts to integrate the physical sense intimates an underlying interest in interacting with nature in order to learn about it. This approach values the more personal and physical more than what is afforded by privileging the tools of inquiry-based science. The tension between factual inquiry-based science epistemologies, and alternative sensory approaches to nature learning.

The Friends of Ballona is another program operating educational tours in the Ballona Wetlands, though their focus contrastingly emphasizes the sensory and emotional relationship. The differential approaches in the same landscape provide a fruitful site in which to examine the frictions between cognitive and sensory learning, and the organizational tensions that ensue. The Los Angeles Audubon Society and the Friends of Ballona maintain a tentative truce in their interactions. The tension stems in part from the Friends’ support of the Ballona Restoration Project first with the Annenberg Foundation, which LAAS has steadfastly stood against. The Ballona Restoration Project has been a long-suffering effort on the part of numerous organizations to figure out how to proceed with Ballona restoration.<sup>76</sup> The deeper disagreement though is born of the difference between a scientific versus a more holistic, sensory approach to

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<sup>76</sup> Annenberg wanted to build a nature center and dog and cat rescue and adoption facility, the Army Corps of Engineers wanted to make it a fully tidal wetland, resident advocates that initially participated in its preservation would like to leave it unchanged.

learning about the Wetlands. One docent went so far as to call the Friends “a joke,” though her explanation of why was off the record, it essentially comes down to organizational approach, and what was phrased by other LAAS participants as an interest more in image and wealthy donors than in quality educational program.

Cindy, Director of Outdoor Education for LAAS, remarked how frustrating it can be when a school does an LAAS tour, can't remember their name, does a Google search for Ballona and finds the Friends, and then has a bad experience. Saying “they will call me the next year and say, ‘this is the one with the microscopes, right?’,” she implied the preference of teachers for a scientific approach that LAAS provides but the Friends does not. The leadership of the organization echoed this sentiment; in an interview with then-president Lisa Fimiani, her description of their education programs centered more on the senses and wanting “[the kids] to feel a part of it” was the priority. The programs did not engage in scientific illustration or explicitly using California Next Generation Science Standards in their content and therefore did not use microscopes, spotting telescopes, microscopes or any other scientific or technological support in their programs. They presented a lesser emphasis on scientific knowledge in favor of affect and emotional of connectedness, though still with an awareness of the watershed, groundwater recharging, and native plants.

On a nature walk led by the Friends, because students were instructed to be quiet, they were then able to hear the sound of dune lupine seed pods bursting open - they sound like popcorn popping. They touched most plants carefully, but freely. Because they were encouraged to taste, I saw a number of students grab bits of wild radish to chew on, or lick lemonade berries to taste their

tart, lemony flavor. This only served to make the experience more real, more personal. The emphasis on the “real” experience is dependent upon embodied interaction with authentic nature, particularly, native plants in their native habitat. That experience exists in tension with the desires for cultivating a scientific, functional knowledge of nature that relies more on reproducible, observable data rather than personal, intimate and importantly, *subjective* experience.

Connecting back to trail use, students on FOB tours were more likely to wander off the path. They were encouraged to enter the representational ki’iy at the entrance to the wetlands, in order to better experience what it might have been like to be Tongva living in this landscape. The lesser emphasis on science and ecology meant participants were more frequently asked to consider the co-productive relationship between people and the landscape. Looking past the tense relationship with the LAAS, the extra sensory work that is engaged in served to further anchor the students viscerally and even emotionally in that landscape. In describing the design and development of the Ballona Discovery Park, with support from LMU’s Center for Urban Resilience, FOB president Fimiani described how they got local kids involved, “So they literally got their hands dirty. They touched the plants, they learned how to take them out of the containers. We could have easily done it and said, “Oh, this is your adopted garden.” We wanted them to feel what it was like to eek over seeing a worm, it’s something they haven’t seen before. Its hands-on experience.” There are benefits in such an approach, and LAAS shows some preliminary integrations of these efforts, even if they are less explicit in program design and are instead more implicit in individual docents’ instructional efforts. Merging the two can create space for a more

plural epistemological approach to environmental education that also gives value to the local and personal experience of each participant.

As O’Loughlin remarks, “the perceptual field itself is constituted through the articulation of body *and* world” (2006, 13); it is through *interaction* that we begin to perceive our environment in stronger, more personal ways. Further, if thought is simultaneously “embodied and enacted” (Lave 1988, 171), then the entire body-person must be addressed when discussing the producing of nature knowledge. In group interviews at other nature centers like Eaton Canyon, one docent shared that he/she seeks to “give a sense of real nature. It’s not “as seen on TV”. How they feel is as important as facts! People are meant to *learn with our senses*” (my emphasis). The emphasis on what is “real” nature is something I addressed in chapter 1, through a framework of authentic (rather than sincere) natural landscapes. In outdoor environmental education, being in an authentic “real” landscape enables a personal, sensory experience of nature that in the case of the LAAS programs facilitates scientific learning. The potential for a fuller integration of physical sensory input is thus present in environmental education, if only educators (and funders) position it as equally valuable to more objective (not subjective) inquiry-based scientific modalities.

### *A visual experience*

While vision and the scopic regime are often tools for a primarily cognitive method for science learning, I also want to acknowledge their value in supporting an embodied nature experience. These two approaches exist in precarious friction with one another, generating space for environmental learning that is at once cognitive as well as physical, thereby increasing the potential for a spatially situated and personally relevant approach. Though a physical sense, the

emphasis on vision as a key tool for cognition has resulted in “the disengagement of the body from essential social and emotional connectedness” (O’Loughlin 2006,7). And, insofar as we exist in a natural world, this also disengages the body and body-subjects from connectedness, inclusive of nature. Echoing Jay and Levin, Ingold argues that vision “in the service of a peculiarly modern project of objectification” leads us to objectify our environment, so that it is “seized by the eyes, analyzed by science, exploited by technology, and dominated by power” (Ingold 2000, 246). While I think this argument is in some ways reductive of the range of human experience and meaning-making around vision and the other physical senses, it is true that outdoor nature education programs in many ways make use of sight as “the noblest and most comprehensive of the senses” (Descartes 1988, 57). The emphasis on scientific visioning of nature in environmental education reinforces this sense of objectification, yet in my observation it also paradoxically accomplishes the opposite, enabling a subjective yet scientific nature experience.

The Los Angeles Audubon Society is fundamentally a birding organization. Birders interact with nature through two primary senses, sight and sound. While the gold standard of experienced birding is recognizing the most nuanced of bird calls, beginning birders start by learning how to recognize birds by sight. The Sibley Guide to Birds is considered the Bible of Western birding, a guidebook any serious birder should have on hand. It teaches birders how to visually recognize birds based on their body size, wingspan, and especially, feather markings. For each species, the guide provides a brief text description of the markings, and a number of highly detailed scientific illustrations of the bird, both male and female, in flight and at rest, breeding and non-breeding, juvenile and adult.

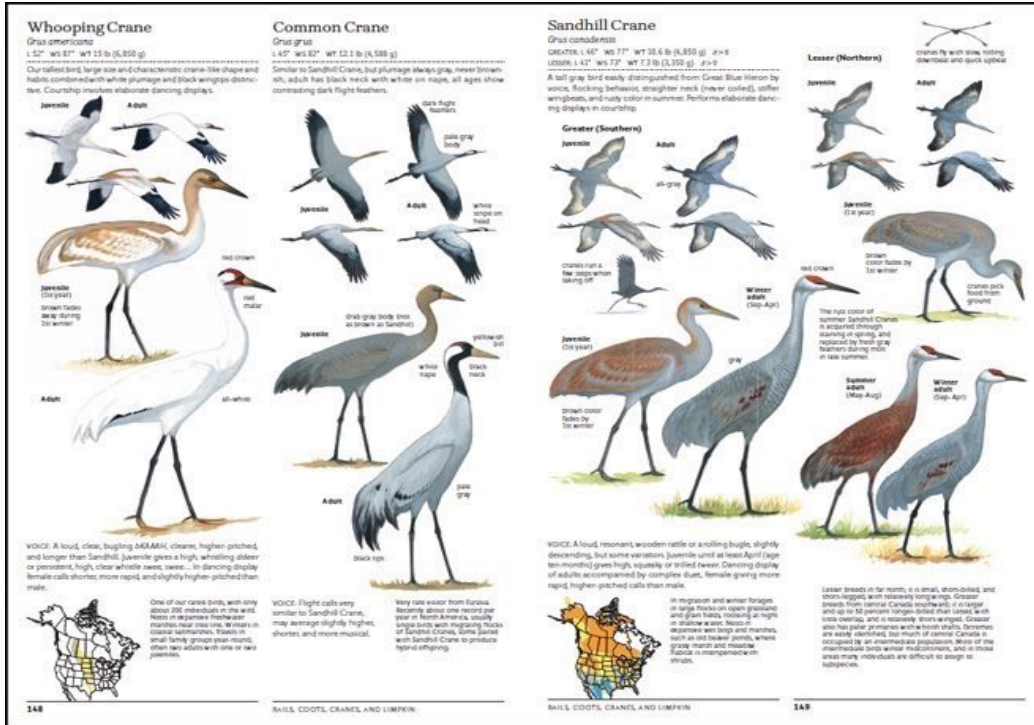


Figure 34: Excerpt, Sibley Guide to Birds

The privileging of vision in birding is just one example of the broader “scopic regime” (O’Loughlin 2006, 21) of Western culture. And indeed, as Ingold reminds us, much of industrial Western epistemology subscribes to the “belief that knowledge is integrated not along paths of pedestrian movement but through the accumulation of observations taken from successive points of rest” (2011, 45).<sup>77</sup> This is exactly what occurs in the outdoor education programs I observed. Although students and docents view the birds, wildlife, and landscape around them, they do so at moments of rest, or in even more structured ways at stations. Furthermore, at these moments,

<sup>77</sup> Certainly, all humans rely heavily on vision as our most highly developed sensory organ. The particularly of objective inquiry-based (Eurocentric) culture is the privileging of vision to the neglect of other physical, and some would add spiritual, senses.

student stop and amplify their ability to see using binoculars, microscopes, spotting scopes, or magnifying glasses<sup>78</sup>. Some argue that privileging sight can set up “an optical relation between mind and world [that is] founded on distance and detachment” (Ingold 2011, 133). While this may be true, I have also observed how getting close to nature visually, also increases the likelihood of connecting physically. When I participated in the NHM citizen science backyard survey, I recall how much more ‘nature’ my kids would notice in our yard once we were out with our magnifying glasses trying to find and see small creatures up close. Still, I would agree with Grasseni that it is more productive to consider how these “different practices of looking yield different ways of knowing” (Grasseni 2007, 216). In this context, sight for learning potentially restricts the worldview to a distancing and objectifying relationship, while also generatively rubbing against the very real sensory experience of being outdoors that gives an ocular focus a personal intimacy.

After a tour at Ballona, once everything was packed up and the students back on the bus, Cindy and I returned to the shore to pour the water used at the microscope station - water filled with California horn snails and amphipods - back into the tidal wetlands. As we walked and chatted, noticing the horn snails and crab holes on the shore, I mentioned how I had never been down this close to the water on a tour. In reply, Cindy remarked: “Whenever I can, if I have a small group of younger students, I like to bring them here, get them down on this level. I have them crouch down. When you're this low, you can see things from the bird’s perspective. Look how big this space is. I marvel at how much open space there is right here in the city. You can see the crab



holes, the horn snails, the water from a bird's eye view... But I don't get to do this often. Imagine with the number of kids we have on tours... everything would get stomped on." Here, sight, and seeing the world through a bird's eyes is privileged. However, it is equally important to note that the use of other senses is seen negatively, and cause for keeping students away from a potentially powerful sensory experience of the landscape.

The primacy of the visual in modern (and Western) culture, risks limiting our experiences of "that which can be looked at, watched, observed, and scrutinized," and, I would add, learned (O'Loughlin 2006, 42). The volunteer Board of the LAAS is entirely composed of educators and scientists, including a historical ecologist and a restoration scientist, as well as two school Principals. There is no Executive Director, so the Board largely dictates the orientation of the programs, which reflect the epistemological leanings of scientists and public school administrators. In privileging sight as an instrument of objective scientific inquiry, outdoor environmental education programs work at the intersection of two very different epistemologies, one emphasizing observation, and the other on intimate experience. As the quotes below show, for these programs, the ocularcentrism of objective science becomes an avenue for more emotive and sensory environmental knowledge and experience by being "in touch with nature" and "in awe".

"And one reason I really love this job is you could be taking kids on a tour and if we see a bird or something we could stop and admire that bird." And "I always just, for me, I get them to see as much as possible out here. And like I said its always nice like here is this stuff go look at it. And like I said, you don't need to go super far to see a lot of stuff here." - Brent

"I think everyone should have an equal opportunity to see experience the outdoors and be encouraged to enjoy it." - Cindy

"If you take them to Kenneth Hahn then they are like in awe... They can still see squirrels out in school or somewhere around them but they will hardly ever see a lizard or a coyote or something like that" - Julia

“I look at it. I don’t feel I need to restore it that way. I look at it, I appreciate it, and I do share what I have taken away [in photos]” - Lana

Similarly, students and teachers alike, whether in student response surveys or teacher evaluations and letters, also commented almost exclusively on the power of *seeing* nature in person. Out of 36 responses, when asked what interested students the most, 28 teachers (78%) replied that the main attraction for their students had to do with sight. For example, one teacher replied: “They loved the *microscope station*, and using the *binoculars*. However they really enjoyed *looking* at the animals in their natural environments” (anon teacher, my emphasis). Confirming their teachers’ impressions, out of 230 student survey responses, 189 (or 82%) replied that their favorite part of the tour was, effectively, being able to “see different plants and birds” (anon student). Sight then is crucial to participants’ access to nature, and the experience more memorable to students than the use of scientific technologies of observation and inquiry.

The emphasis on sight can be expanded to include the growing phenomenon of documenting one’s nature outings; social media, hashtags like #findyourpark, and the selfie phenomenon propels this shift. While a positive effort, the latter also led to a rash of dangerous selfies at places like Yellowstone National Park, with headlines such as “Bison attacks woman taking selfie in Yellowstone Park,” prompting park officials to adopt a “Safe Selfie” policy. These socially oriented innovations in the documentation of nature involvement hint at an enriched interplay between people and the environment, but precariously also reflect a view of nature and one’s presence within it as something to be documented and catalogued. The 2017 craze with the app-based game Pokémon Go is an apt illustration. In a Boom California article on the subject, Rasmussen describes “inside-kids clearly unused to being outdoors (you can just tell), clutching

their Androids, indifferent to the actual fauna all around them, hunting an image superimposed on a digital camera reproduction of a real landscape” (2017).

Such moments of nature encounter are complex – they effectively reduce nature experience to a visual one mediated by a phone screen, but it could also be argued that at least these students are outdoors. They hint at moralizing white Eurocentric discourses of appropriate nature experience while discounting alternative ways in which people interact with and experience nature, even if it is only tangentially through Pokémon hunting. The hegemonic expectation of walking alone, in quiet awe and wonder of a wild untouched landscape, is disrupted by noisy urban teens trampling the undergrowth and staring at their phones. Rasmussen describes it as amounting to “policing access to nature” in the racialized and classist manner of hegemonic white narratives of proper nature use. Further, such experiences also remind us racial (and class) inequities in access to nature, and to the possibilities of a safe outdoor experience. As writer Omari Akil lamented, “Pokémon Go asks me to put my life in danger if I choose to play it as it is intended” (Akil 2016).

O’Loughlin remarks that the proliferation of images, in part thanks to modern electronic technologies, “has the effect of detaching them from their origin, simultaneously rendering them ephemeral, ahistorical and decontextualized” (2006, 22). Indeed, in discussing the rationalization of sight, William Irvins argues that science and technology have progressed in such a way as to “contrive methods by which phenomena which otherwise could only be known through the senses of touch, hearing, taste and smell have been brought within the range of visual recognition and measurement” (Irvins in O’Loughlin 2006, 29). In this consideration of the learning

experience, I am less interested in a critique of ocularcentrism (which I expand upon in chapter 2), than in uncovering how it determines what is considered a valid process for acquiring nature knowledge. By relying on amplified sight - binoculars, spotting scopes, microscopes, magnifying glasses - outdoor education programs reinforce objective science emphases on vision rather than capitalizing on the embodied outdoor experience to foster a more subjective, local experience of urban nature.

### *Embodied praxis*

The last aspect of a sensory experience of nature that I want to touch on here is the role of embodied praxis in nature learning. Specifically, I refer to how bodily action with nature produces specific kinds of knowledge. Sometimes, programs intentionally integrate embodied experience into the learning process with the goal of entering into a relationship with nature through labor. One example concerns the “restoration station” at the Ballona wetlands. As described in chapter 1, restoration is a big part of nature education and awareness programs, especially in “real” nature spaces like KH and Ballona. Upon reaching this station, docents briefly explain the difference between native and invasive plants, noting that natives are those that “belong here”. They tell the story of ice-plant which migrated from South Africa to America thanks to “careless people.” In the drier climate of South Africa, the plant serves the role of anchoring earth and retaining water. Here however, students are told that iceplant is an invader, a “leftover from when people didn’t value the wetlands” (field notes). Students in their post-tour surveys reiterate that the ice plant “hogs all the water.” Armed with this knowledge, the students are instructed to remove their binoculars and place them in the orange wheelbarrow. They then don provided work gloves and are tasked with ripping out as much ice-plant as they can within

5-10 minutes, quickly turning the work into a competitive game to see who could remove the biggest strand of ice-plant in one pull.

The act of pulling up ice-plant made nearly as strong an impression as seeing birds and other wildlife through binoculars. By engaging multiple senses - sight (looking for ice-plant) on the tidal flat, touch (as they grasped the longest, heaviest vines), sound (of the ripping roots), and possibly smell (as they breathed in the sea air and got whiffs of freshly turned earth) - the experience served to anchor the cognitive learning (about species differentiation and adaptation, food chains, resource consumption, and wetland biomes) in the body. It also advocated an empathetic caretaker relationship to nature. One docent remarked that seeing the native plants return after ice-plant removal seemed like a miracle. Teachers describe students enjoying the removal process and “the feeling of contributing to the community.” By rendering cognitive learning experiential and tactile, this is one space that might create room for outdoor education programs to recognize and encourage alternative forms of knowing and learning about nature.

The mega drought these last few years meant that introduced grasses didn't grow, and after years of removal efforts there is little to no ice-plant left to pull. The Restoration Station was therefore replaced with the Migration Station. This was also an active learning session - squares of paper are laid out in the shape of California to represent historic wetlands. Students pretend to be birds hopping from one “wetland” to the next. At each round, 10% of the wetlands are removed. By the end, the 3-4 remaining wetlands are so far apart that students can't hop from one to the next. The idea is to show them that if they were birds, they might not survive with so few wetlands (critical spaces to refuel and rest while they migrate). It is a powerful representation, drawing on

affect and morality to put the students in the birds' shoes, and in so doing cultivate empathy for their plight, and hopefully, ultimately, an environmental stewardship ethic to prevent this from happening.

Beyond recognizing the potential for increasingly embodied (as well as cognitive) forms of education and learning, the role of the body in learning is especially relevant to the environmental education context as the programs seek to cultivate a sense of place through nature. FOB Director Lisa Fimiani remarked that “native habitat is important in order to retain a sense of place... I feel like I'm one with the area when I'm in touch with the plants around me.” Her assertion illustrates the importance of being in physical contact with nature to create a sense of place. Similarly, at a policy conference entitled “Enhancing Urban Biodiversity”, a speaker from the Theodore Payne Foundation remarked at how residents were increasingly getting physically engaged with their landscape - “they want to put in drought gardens, put in something that gives more of a sense of place.” Like docent Beverly remarked, “the goal is to connect with the place, physically.”

Activities like removing ice-plant and invasive grasses are thus hoped to be the beginnings of a new “embodied history” (Bourdieu 1990, 283), such that these children might one day draw on this experience to create their own communities of practice. As Grasseni reminds us, “everyday bodily practice... contributes to the configuration of a specific way of knowing” (2007, 205). Long-time docents and LAAS staff remark that for some students, this early embodied exposure to the work of nature learning and awareness pays off. One docent said her motivation for volunteering was that she “wants [the students] to come back, and bring their families... hands-

on experience is key.” A student volunteer similarly explained that she wants to stay in the Los Angeles area so she can watch the plants she planted grow. In a similar vein, the Director of Environmental Education for the LAAS emphasized access (which of course necessitates a bodily nature experience): “if you don’t have access to nature in your cities, you are not gonna have voters, communities who care about it anywhere... [you might] put something up for a vote because of the garden your grandma had where you got to see the tomato worms and *pick them up*.” The emphasis on tangible bodily experience exists in precarious yet generative friction with the cognitive investigational science content of environmental education. An embodied experience of science-based nature learning is a strong first step towards a more inclusive environmental awareness driven by social justice imperatives.

This is directly relevant to Sherry Ortner’s analysis of practice theory, which seeks to explain “the relationship(s) that obtain between human action, on the one hand, and some global entity which we may call “the system,” on the other” (Ortner 1984, 148). Students are constructed as active agents who can, one day, transform society due in part to their embodied experiences with nature as children. Simply put, it is in the doing that values and systems are instilled into actors, and from there are either refuted or supported through their continued actions. In this context, while ‘doing’ nature might be less important for the cognitive-based science learning desired by the school system, it is primordial for the development of future environmental citizens and environmentally conscious voters and politicians (see chapter 4). Practice theory is readily applied to investigations of environmental activism, to consider what people are actively doing in relation to the environment, and how this reproduces or changes “the system.” Such

analysis should extend to environmental *education* as well, investigating it through an equally active and practiced lens.

Kids love to touch things and taste them. It is no secret that young children love putting everything and anything in their mouths, and are generally fearless about touching the unknown (unless/until they are taught otherwise). It seems a shame then not to capitalize on this innate curiosity. Indeed, frequently on LAAS tours at KH/Ballona students would gather round to closely examine and try to touch dead (or living!) insects and other creatures, only to be warned against touching things. They were only encouraged to touch certain plants, specifically salt grass at Ballona, and coastal sage (colloquially called cowboy cologne) at Kenneth Hahn. In touching salt grass, they could feel how the grass exudes salt crystals as it drinks up water at the vernal pond. In touching coastal sage, they are then able to sniff their fingers and smell its strong scent while they listen to a docent tell the story of cowboys using it as cologne. The physicality of this sensory experience cultivated an *affective* relationship with nature and the wildlife that was less present in the LAAS programs.

### **There was something with big teeth!**

#### ***Emotion & affect***

In the preceding sections, I have attempted to show how movement, the senses, and embodied practice are implemented to varying ends in environmental education. Here, I will expand on how emotion and affect are equally important parts of the experience. These categories are not independent; often the physicality of the senses and the body are used to spark an emotional response. Similarly, emotional or affective responses to nature are called upon to inspire action



on the part of the learner. Over the months of my research, I came to notice two key trends - first, as previously described, that different bodily senses were put to work to different ends, and second, that emotion and affect, more so than cognitive knowledge (and importantly, as a result of physical experience) served to achieve programs' ultimate goals of developing an affinity towards nature in the learner. This affinity, it was hoped, would one day create sympathetic communities of environmental citizens.

Affect can be considered the more physical, embodied cousin to emotion. According to Hemmings, affect refers to “states of being, rather than to their manifestation or interpretation as emotions” (2005, 551). Put simply, it is the state of being excited, as opposed to showing your excitement. Affect is what connects us, our bodies and emotions, in “a *circuit* of feeling and response” (2005, 552). Deleuze (1997) distinguishes between affect and emotion by framing affect as the bodily meaning underlying the social interpretations of emotion. In this section, I will therefore show how affective encounters with wildlife aim to build empathy for non-human life, as well as a sense of place in urban natural landscapes.

When I designed this research project, I had not considered how emotion might play a part in environmental education. In fact, though, scholars like Anderson (1996) and Milton (2003) address exactly this question. It shouldn't come as a surprise as one of the fundamental values embedded in environmental education is in fact caring for, even a love of, nature (Milton 2003, Taylor 2001). In attending school visits, participating in tours, and throughout many casual conversations and observations, I discovered that emotion and its cousin, affect, were in fact deeply implicated in nature learning. Sometimes, creating an emotional connection was

intentional in order to help students and docents develop sympathy towards nature, which it was assumed would in turn guide them down the path of environmentally-conscious living.

Frequently, it came spontaneously from the students, expressing their experience in emotional terms. When one student exclaimed, “I love this field trip!,” I asked why; she replied, “I get to be outside!” Akin to the way movement was aligned with a sensory, personal experience in contrast with the stillness of receiving learning content, emotional outbursts and invocations occurred more frequently when students were focusing on their bodily experience, separate from the scientific content. Following Merleau-Ponty and Dewey, if we are to consider the body in nature learning, we must also theorize its interconnections with other beings as an “emotionally charged agent of embodied praxis” (O’Loughlin 2006, 130).

### ***Loving to fear the wild***

Emotion is central to the ethics of environmentalism. As a member of the Audubon commented “I want to see the earth continue to be a green place with a diversity of creatures... I have such love for all of this” (cited in Thiele 1999, 168). Similarly, most of my docent respondents spoke of how their love of the outdoors and of nature, coupled with their love of learning and children made volunteering in environmental education an easy choice. Thiele argues “the pure delight in nature’s existence plays a crucial role in sustaining environmental behavior” (1999, 171). It is up to environmental education then to cultivate what volunteer docent Astrid called a “joy in nature and get excited.” In one study on community-based environmental learning in Vermont, one teacher remarked that “the thing that builds and ethical human being, an ethical child, is not reasons, but feelings. The energetic base of morality is compassion, which requires being in touch with things, feeling empathy.... And you cannot feel empathetic toward something until

you're intimate with it somehow" (Kiefer and Kemple 1999, 4; see also Krapfel 1999). The idea of intimacy opens up space for an interaction with nature that goes beyond factual knowledge. In this way, students can cultivate their own definition of a 'joy of nature' based on the sedimentation of their own experiences with nature, situated within their homes, communities, and cultures. Though politically problematic, describing the landscape and wildlife through terms like "suffering and abuse" in order to introduce framing humans' role as one of protection and restoration, organizations frequently do succeed in kindling a distinctly empathetic connection to nature. It is this empathetic connection that such programs hope to capitalize on to cultivate a life-long love of nature, and ultimately, create earth-citizens who act as responsible stewards in its preservation.

### *Fear and other strong emotions*

It is important to note that fear of the outdoors is something environmental education programs work actively to fight against, in order to cultivate and empathetic biophilic relationship with nature. When I asked program creator Cindy what she wants the kids to get out of the experience, she replied, "mostly what I want is for them to get off their asses and get out of the house and to not be afraid to be outside." A docent who had volunteered with the program for 15 years said that for her, because "students are comfortable indoors, they need to get outdoors and get over being uncomfortable, appreciate the elements. Get connected with the true natural world." Confronting student fears and turning it into excitement is where these programs really make an impact. Education Director Stacey remarked that she most appreciated "seeing the changes in behavior when students are off the pavement. Some of them are terribly afraid. It's a narrow trail and they have to walk down the hill, and I'll have five 5<sup>th</sup> graders saying no I'm afraid of height,

but then when they come back they're all chattering about it, 'I thought I was gonna die!' but they're excited." This emotional transformation from fear towards nature enjoyment and appreciation is critical to cultivating environmentally-conscious attitudes and actions that become a part of what it means to be an environmental citizen.



Figure 35: Elementary School Tour at Kenneth Hahn SRA

Of 230 student surveys completed, nearly all students responded that they enjoyed<sup>79</sup> the trip. This overwhelmingly positive emotional expression of simple enjoyment of the trip is at odds with the more complex affective experience I witnessed during the tours. Certainly, this response is in

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<sup>79</sup> Of course there is a margin for error due to teacher instructing students on what to say, or copying each other because they don't know what to say.

part due to the format of the survey, and guidance by teachers on what to write. Then again, in individual thank-you letters written by students, their illustrations of the wildlife they encountered were not scripted. They in fact pointed to the affective interconnected moments they had experienced as they walked (or for some, trudged) through the landscape. These experiences were more emotionally complex than “fun.” At each encounter with wildlife (flora and fauna), they alternately reacted with awe, fear<sup>80</sup>, disgust, and boredom. In this aspect, children’s bodies are easy to read, their affective sentiments obvious. When students were nervous, they tended to cluster closer to either their chaperones or the docents; once when acting as a volunteer docent a 3<sup>rd</sup> grader reached out to hold my hand. Surprise, awe, and disgust are easy to identify, usually by frequent exclamations such as “wow!” upon spotting red-tail hawks with their binoculars, “ew that’s gross” when looking at microscopic amphipods, and giddy “did-you-see-that’s,” when catching a glimpse of a ground squirrel popping out of its hole (fieldnotes). Students (and teachers) would ask “are there any poisonous snakes here?” and wonder Boredom was quieter and often less demonstrative, though still present. Generally, the bored children would shuffle along through the sand at Ballona (or dirt at Kenneth Hahn), trailing far behind the other students or not paying attention while docents spoke. Certainly, complaints about the heat that increased as the day drew on also pointed to fatigue and boredom with the activities.

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<sup>80</sup> Many of the students who attend the tours show their fear at being outdoors. As the author of a 2014 LA Times article remarked, “Some who work in state and national parks have expressed deep concern to me about how school kids show up on field trips not so much eager to play, or excited to learn, but unsettled by whatever ferocious creatures might be lurking in the bushes” (Ferguson 2014). Fear of nature is increasingly widespread, with fewer and fewer children playing outdoors.

A 2003 survey of 830 mothers by Rhonda Clements revealed that 70% of the women said they played outdoors every day when they were kids, yet only 31% of their children played outside daily (Clements 2004).

One story that was retold countless times at the Ballona wetlands serves as a perfect example. Docents recount how, at the start of a 4th grade tour, a group of students looked into a clearing and spotted a Western cotton-tail. They excitedly lifted their binoculars, pointing and exclaiming how cute it was. As if in a movie, just then a red-tail hawk cried, swooped down and scooped up the bunny. The story ends either with the rabbit practically exploding in a puff of fur, or with the hawk carrying it off. Either way, it was a spectacular sight for the students, who recoiled in shock and disgust, while simultaneously both crying and shouting with excitement. It is this complexity of emotion and affect that an embodied encounter with wildlife inspires. Even deceased wildlife can have this effect - at a school pre-site visit, students' bodies betrayed their words. When shown a stuffed hawk, remarks ranged from "yuck" to "poor bird," yet the vast majority of the students reached out to touch it as they filed past. As one teacher commented in evaluating the presite visit, "they really enjoyed being able to touch the animal and plant specimens. This helped it become more real to them." Like Ingold's (2011) "meshwork" or Ogden's "rhizomes," (2011) there is a level of connectivity that most strongly comes to light in embodied, emotional, affective encounters with non-human life.

The DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) lists four specific phobias, one of which is called "natural environment phobia" or the irrational fear of danger or harm due to natural phenomena and environments such as being in the woods or a fear of thunderstorms (Grohol and Tartakovsky 2016). This is a shift from categories of fears like snakes or spiders, to a disturbing discovery that "modern-day fears of the natural world may have no such locus. In children especially, anxiety can be evoked by the most unexceptional circumstances: a flock of noisy birds or a strong wind" (Campbell 2017). Furthermore, there are links between

anxiety/depression, and natural environment phobia. Yet, in school tours, especially once they venture out onto the more rugged trails at Kenneth Hahn, or take the meandering muddy path toward the Restoration Station at Ballona, students nervously and giddily comment on whether they might see poisonous snakes. Frequently the younger students would exclaim they saw “something with teeth!” watching them from the bushes. Encounter, and more frequently the simple possibility of encounter with (dangerous) charismatic megafauna enhances the authenticity and affect of the experience.

Similarly, in surrounding neighborhoods, resident concerns around the growing presence of such animals lead to frequent discussions on social media: “yesterday at about 6:45am I seen a coyote running down Alviso and 60<sup>th</sup> I couldn’t believe my eyes”; “I read awhile ago where someone posted that their friend who lives in the area actually witnessed a van dropping off coyotes. Someone brought them here”; “I just saw a coyote with a dead cat in it’s mouth traveling south on Mullen, then west on Fairview, in the middle of the street @ 7:10am. I think I will start walking with a stick now!”; “my dog was attacked and killed a few days ago. I have lived in this neighborhood since 1958 and have never seen anything like this. This is terrible!” (Nextdoor discussions). Their comments reflect fears of encroaching wildlife/wilderness, as well as anxieties around the shifting racial and socio-economic makeup of the community. Certainly, others respond to these reactionary comments by offering information on upcoming community workshops to address coyote concerns hosted by municipal officials such as the Culver City Police Department, California Department of Fish & Wildlife, Baldwin Hills Conservancy, and the LA Country Sherriff’s Department to name a few. Others were more humorous in their replies; one member posted a video titled “World’s Happiest Coyote Steals A Ball to Play Fetch

By Himself” in order to “counteract the negative feelings associated with these animals.” Still others add to the debate, bringing up either disgust or amusing affinity for the other neighborhood wildlife: “you can have my squatting family of four raccoons and a bachelor opossum” to which another neighbor replied “Hahaahaa! The last raccoon I saw was in my yard smoking a cigar!”

### *Biophilia & empathy*

It is on these affective connections, whether they be positive or negative, that program discourses of empathy and sympathy come to rely. Frequently, feelings of love and joy in the environmental context are referred to as biophilia. E. O. Wilson coined the term ‘biophilia’ and recently made headlines for advocating the “Half Earth” concept - wherein to avoid the 6<sup>th</sup> mass extinction he argues we must set aside half the planet as “permanently protected areas”. E.O. Wilson defines it as the “innately emotional affiliation of human beings to other living organisms” (Wilson 198). This affiliation is of course not always a positive one - for example, fear of large predators, aversion to snakes, or love of infant mammals. However, Wilson argues that our response to natural stimuli is always fundamentally an emotional one, itself driven by a biological need to deeply connect with the natural world. If emotion underpins biophilia, then empathy may be one way to make biophilia come to a positive, rather than negative, outcome. Pedwell calls empathy “an affective bridge between social and cultural differences” (2014, 21). I apply this definition to the relationship between human and non-human life. Further, if we accept Feld’s argument that the self and the environment are constructed in a dialectical dance between physicality and emotion or cognition, we begin to see how attending to such a “dance” would be beneficial in building environmental stewardship values within nature education programs (2003, 31).



The discourses I observed in community events, political speeches, and nature center ephemera are proof of the importance of empathetic biophilia to environmentalism. As the Director of Environmental Education commented: “Definitely, I think outdoor spaces are a way to connect to a place, but also a way to tap into empathy. When you look at a snail, you see the world how the snail sees it. Its rough, its dry right now, what is the snail gonna do? The outdoor spaces... a space like this provides an opportunity for safety and that touch of physical discomfort. It’s rough to be outside, to be an animal. What if we didn't have all the stuff we had. Empathy is key.” It seems that the program did work to cultivate empathy between students and nature - one child, when asked if/how they would restore nature in my survey, replied that “it would be... to not kill little creatures you might see or be scared of.” Still, these instances are small; the LAAS programs as a whole seem beholden to the imperatives of NGSS Science Standards that drives the content and, due to the nature of inquiry-based epistemologies, limits the opportunities for substantive empathetic environmental interaction. As the Director of Environmental Education described in an interview,

“outdoor spaces are a way to connect to a place, but also a way to tap into empathy. When you look at a snail, you see the world how the snail sees it. It’s rough, its dry right now, what is the snail gonna do? The outdoor spaces... a space like this provides an opportunity for safety and that touch of physical discomfort. It’s rough to be outside, to be an animal. What if we didn't have all the stuff we had... Empathy is key. When you’re physically uncomfortable, you can see your classmate is too. So it’s that empathy, that community.”

In her response, Stacey actually intertwines empathy and sympathy to reach the same goals: not only do students feel sorry for the hardships of the snail, but they also are provided opportunities to put themselves in the shoes of wildlife, cultivating empathy. Sympathy is a gateway to empathy, and the empathy, according to Stacey, is what cultivates a cross-species sense of

community, that we are all animals and we are all nature struggling together to survive. Placing the students in the same lived reality as wildlife is an intentional way for them to develop a local understanding of urban nature, and hopefully, environmental stewardship sensibilities. It is hoped that, in addition to cultivating pro-environmental voters, these sensibilities become a part of the daily practices of what it means to be a good urban environmental citizen, a caretaker of nature for local (and planetary) sustainability.

## **Conclusion**

In this chapter I have endeavored to illustrate the tensions between an affective, embodied experience of nature, and the more cognitive, prescribed narratives and practices of objective inquiry-based science. In particular, I examine how bodily learning can either support or exist in tension with scientific practices and narratives (O'Loughlin 2006). Students who participate in environmental education are evidently excited about the novelty of being in an “outdoor classroom” as teachers often describe it. When asked what they learned, the responses are edifying: students focus more on the physical experience than the scientific content.

Practices of wayfaring (Ingold 2011) embedded in school tours cultivate an experiential and deeply personal place-knowledge. The biophilic affect that students demonstrate indicates the value of this approach for environmental awareness. Yet, narratives of exploration and discovery risk reinforcing dominance hierarchies of man over nature, and echoing settler colonial structures of claiming nature. In another instance of the conflict between objective inquiry-based science and embodied experience, despite students' desire to touch, taste, and smell, often only visual

interaction is allowed (unless students are participating in restoration activities). Leave no trace principles evidently underpin such programs. Ultimately, I have argued that the generative friction (Tsing 2005) of the experiential interplay of science, bodily experience, and emotion in an outdoor landscape can enable a more plural, personal, situated environmental education, leading to the kind of transformative nature learning and valuation that EE programs hope to cultivate.

## CHAPTER IV: WHITE PRIVILEGE AND THE RACIALIZATION OF ENVIRONMENTALISM

*“Our foundational stories should see, but also cherish and sacralize, our mundane, economic, utilitarian, daily encounters with nature - so that what car you drive and how you get your water and how you build a house should be transparent acts that are as sacred as hiking to the top of Red Rock Canyon in the Santa Monica Mountains and gazing out over the Pacific Ocean...” (Price 2006)*

### **Introduction**

In my interviews, when asked about any racial differences among tour participants, responses were split: while some docents avoided the question, others responded that they did indeed see a difference in how white students and Black students acted (Figure 36).<sup>81</sup> Having observed the same tours these docents led, I confess from my perspective the primary difference was that more affluent students acted unimpressed with the landscape, while Black and Latinx students presented more extreme reactions, primarily awe and fear (see chapter 3 for more on this point). The co-production of race and nature goes deeper than simple observed correlations between race and nature attitudes. Indeed, fully recognizing the intersectionality of race and nature requires attending to “the historically pernicious relations of humans to the planet and the corollary, intersecting exploitation of ethnic and racial difference” (Nishime 2018, 250).

As of 2016, California is home to more than 10 million immigrants, and half of California children have at least one foreign-born parent (PPIC 2018). In Los Angeles, foreign-born

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<sup>81</sup> This is an area I would like to pursue further by asking the students themselves what their experience was, and whether they noticed any racial or ethnic variance among their classmates.

residents represent over 30% of the population, or nearly 3.5 million people. In terms of racial composition, only 26.7% of the population identifies as non-Latinx white. This means that nearly 75% of Los Angeles County residents identify as Latinx, Black, Asian, indigenous, or some combination of the above (US Census Bureau 2016). Attending to race and nature for environmental education then is not a recommendation but a necessity.

The nature experience upheld by whites has a nasty habit of confining its access and experience to those middle-class whites with the requisite time and financial means. For the environmentally-minded white middle-class, the ideal nature experience involves wilderness activities such as camping, backpacking, and mountain climbing. Yet, getting in touch with nature in this way requires an ability to take vacation time, and to afford to requisite gear and access to Wilderness spaces. National Park Service study in 2008-2009 showed only 9% of National Park visitors identified as Latinx, and 7% as African American. Non-whites made up 20% of all visitors even though they are 40% of the U.S. population.

<b>Black and Latinx low-income students</b>	<b>White affluent students</b>	<b>“Kids are the same”</b>
B: hey “come with limited exposure, but are just as bright”	H: Affluent kids are not as grateful”	A: “Important that no matter the school all kids get the same program. Kids are malleable, still open, perfect age for indoctrination.” B: “Kids are kids and I’m glad they have the opportunity to come”
C: “lower-income kids react with more awe”	I: “With the affluent kids some are tuned in, passionate... others have a “been there, done that” attitude”	E: “All kids respond the same”

D: “it’s a great experience for poorer kids – they get to use real microscopes, real binoculars”	J: “Affluent kids are harder to teach”	G: “All kids react the same regardless of demographics – they all seem enthusiastic”
F: “South central kids are respectful, Title I schools love the fieldtrip”	L: “it’s harder to connect to affluent kids”	M: “affluent kids make different connections – ‘that looks like edamame,’ but all are equally excited”
H: “When inner-city kids come out, they love being in nature”	N: “the westside kids are already educated in a lot of this”	
I: “Especially Hispanic kids, they love it here, they can relate to their family in Mexico... maybe the Black kids are more scared, they just need to get comfortable [with nature]”		
J: “Title I kids are more appreciative”		
K: “Inner-city kids are in awe – we’re showing them there’s more than concrete and cars, teaching them to treasure [nature] and make it important”		
N: “the inner-city kids act out and don’t listen – they need something more attention-grabbing. They want to learn but don’t know how to ask”		
O: “they are most desirous of knowledge, they’re easier to be around and more able to absorb. They need this exposure”		

Figure 36: Docent interview responses on the intersections between race and nature tour responses  
*Each letter denotes a unique respondent.*

Similarly, as I observed a tour, a young SMC student leader and student favorite stopped in front of a laurel sumac in the native habitat garden and asked the students - that day from Walnut Park MS (95% Latinx) - what food the tree’s leaves resembled. Students came up with a number of suggestions - sandwich, pea, pizza - but no one said what the leader wanted them to say, a taco.

It is difficult to say definitively whether this expectation is due to the students' race, or being the leader assumed all kids like tacos and would recognize the shape. However, on the few tours<sup>82</sup> that didn't serve Title I schoolchildren that I observed, I did notice the leaders didn't always reach for the taco analogy in describing the laurel sumac, instead sticking to the advantages of the shape (directing water down to its roots).

As Moore et al. have remarked, "race and nature legitimate particular forms of political representation, reproduce social hierarchies, and authorize violent exclusions - often transforming contingent relations into eternal necessities" (Moore, Kosek, and Pandian 2003, 3). These violent exclusions have simmered to the surface of analysis in environmental justice literatures which seek to redress these histories and draw attention to their contemporary persistence. Critical race theorists Michael Omi and Howard Winant (1986) have demonstrated how racial difference, rather than being based on biological characteristics or objectively identifiable traits, instead is actively produced, reproduced, and transformed through processes of racialization (Omi and Winant 1986). Anthropologist Ana Ramos-Zayas applies this framework to focus on the socially grounded and politically situated personhood impacted by "racial and colonial projects in their everyday manifestations" (Ramos-Zayas 2011, 26). Applied to race and nature in the urban setting, intimate and personal engagements of individuals and communities refract and resist the hegemony of racializing colonial projects around nature experience, knowledge, and ethics.

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<sup>82</sup> A program focused primarily on Title I kids, a Los Angeles Unified School District category for schools that have at least 40% of students from low-income families (LAUSD.net)

Drawing on veteran Park Ranger Soskin's wisdom, urban parks and green spaces are just as important as wild spaces; "the urban spaces combined with nature tells the American story. Our parks are *our* American story" (National Geographic 2016). In this context, education programs frequently are framed (and frame themselves) as doing environmental justice work. And yet, outside of grant applications, interviewees replied that using the environmental justice angle was often just lip service and could even be detrimental to an organization's goals. In an interview, Baldwin Hills Conservancy Executive Director David McNeill questioned the legitimacy of environmental justice, alluding to the race card that "Environmental justice gets you in the door but I don't like playing that card, that's one of the last cards I'll play. If you're in the room and everything is about white guilt or corporate guilt – you want to be there as a legitimate person." By "legitimate person," Mr. McNeill is implying that getting the environmental work desired can't be through a lens of guilt or blame; rather, it has to be presented as a "legitimate" every-man concern, not an exclusively Black person concern. Similarly, Cindy remarked that environmental justice is "a big buzz word within the environmental education community. Basically social justice, basically poor people should be able to be outside, too. But, it's sort of a squishy concept, because not many affluent people get outside, either. So, it's really a nature justice for everyone, I think."

I hone in on these questions as experienced in the urban setting by communities of color, with special attention to environmental education programs for schoolchildren, considering the differential values (especially stewardship), experience, and practice of nature among white and non-dominant groups. Each aspect is situated within persistent social inequalities around race, class, and nature access. This analysis becomes particularly relevant when the students who



participate in such programs have a different set of values and lived experience from educators, creating a disconnect that can affect the potential for program inclusivity. As an example of how to recognize and engage with subjugated non-dominant communities to foster a place-based, culturally empowering form of nature education, I focus on the cultivation of a distinctly Black “home-place” ecology in the Baldwin Hills, at the heart of the Ballona Creek Watershed and LAAS programs. While not an environmental education program, the process relies on similar funding structures and sites for community involvement. With this example, I show how one urban community has gone about defining their own set of nature values and experiences, considering the possibilities of integrating such an approach into science-based environmental education initiatives.

### **White privilege in environmental stewardship**

#### ***White privilege***

The dominance of white privilege is well-established in experiential education, and simply encouraging more racially diverse participant groups amounts to a benevolent invitation for “others” to take part in processes and institutions already well under way without them. Indeed, “making minor modifications in a theoretical framework in order to accommodate newly recognized issues and challenges too often means giving lip-service to their importance while carrying on the educational practices that contributed to the problem in the first place” (Bowers, 2001, p. 26).

Scholar Stephen Nathan Haymes examines the “colonizing ecologies” of white Eurocentric epistemologies, considering how these are contradicted by African American ecological

knowledge. Specifically, he argues that the white Eurocentric modernist paradigm of nature supports “the subjugation and control of nature through technology,” predicated on the suppression, erasure, and enslavement of non-dominant groups (Haymes 2018, 37). As a result, as cultural geographer Carolyn Finney eloquently puts it, “whiteness, as a way of knowing, becomes *the* way of understanding our environment, and through representation and rhetoric, becomes part of our educational systems, our institutions, and our personal beliefs” (2014, 3). The social privilege of whiteness in media representation, social capital, and political power has so fully permeated how we understand and perceive nature activity, that even efforts targeting non-dominant groups often end up reproducing and prioritizing what is fundamentally a narrow and privileged way of knowing nature.

Many activities in experiential education programs derive from leisure activities of privileged classes. Institutional outdoor experiential activities, such as backpacking, ropes courses, and orienteering, are generally and contemporarily understood to be white domains in both content and physical location (Chavez, Winter, & Absher, 2008; DeLuca, 1999; Roberts, 2009). Further, middle-class white instructors, with their own experiences in the hegemonic environmental practices (which often motivate them to teach environmental education), may be drastically different from those of non-dominant lower-income people of color. Despite a desire to increase diversity, without acknowledging the privileges imbued in traditionally white nature values, knowledge, and practices, simply recognizing difference and increasing diversity will not break the systems of oppression embedded in the nature of whiteness.

The white narrative is unmarked and presented as a universal fact, while other approaches become marked as Other. The dominant group thereby frames their perspective as neutral, authoritative, and universal, constituting the unmarked positionality (see Frankenberg 2003). Further, this Othering (Urciuoli 1996) is frequently observed in contexts where a dominant minority subjugates an Othered majority through practices of slavery, neo-colonialism, and immigrant discrimination (Dick and Wirtz 2011). These problematics point to the way in which an equal-access-for-all approach, while potentially beneficial, masks the variety and worth of cultural and individual differences in ways of valuing and interacting with nature. Similarly, though the term “diversity” is frequently deployed as a progressive gauge of inclusivity, in practice it becomes a toothlessly polite color-blind move to avoid the charged politics of ethnicity, race, gender, and orientation (Shankar 2008, Mendoza-Denton 2008).

Organizations are working towards equality, rather than equity, advocating an equality based on normative white middle-class environmentalisms. At a community event celebrating the opening of a new trail at Kenneth Hahn, County Parks Acting Director John Wicker praised Supervisor Ridley Thomas for “realizing the ideal of *equity* within this District, building trails, building nature centers, really making it happen at Hahn Park” (field notes, my emphasis). Though he uses the term “equity,” in reality his narrative is about equality – giving the local Black and Latinx community facilities and resources equal to those more affluent white neighborhoods. Adding another layer, these Black communities in adjacent to Kenneth Hahn are quite affluent, with household income equal to or greater than that of residents in primarily white neighborhoods in Santa Monica or Mar Vista or Cheviot Hills. However, because they are inhabited by marked minorities, they are perceived as lesser than, and therefore in need of

equalizing initiatives. Thus, despite using an environmental justice framework, whether as a cornerstone of a program's identity or as a last card to play, many programs fall into a homogenizing one-size-fits-all nature trap.

One final point on this subject concerns the future movers and shakers of the environmental movement in America. The very liberal outdoor education director for LAAS often tells the story of the elementary school student who, when asked if they'd seen a great blue heron before, replied "I went to Patagonia last summer, so I've seen all this before" (fieldnotes). This story is often told with mild disapproval, concluding by making a comparison to the "awe" that minority kids (who are presumed to have little-to-no outdoor experience) show when attending the tours. Yet, it is also told in response to docents when they ask "why do we need the rich kids? Why do we do these kids that already get to go outside, that have already traveled?" Cindy informed me that she tells them the Patagonia story and reminds them that "like it or not they're [the rich white kids] the ones making the policy." Thus, despite an environmental justice framework, and minority kids' perceived "awe" at nature as a sign of program success, in the end, it is assumed and even expected that it is the Patagonia kids who will be voting and writing environmental policy.

On a more personal level, as a new board member of the Los Angeles Audubon Society, I am acutely aware of the ways in which organizations attempt to integrate environmental justice and diversity narratives. I am both the youngest member, and the only minority. Rue Mapp, founder of Outdoor Afro, pointedly commented that "you can certainly brown-wash your environmental messaging, but if your executives, leadership, the C-suite, and board don't reflect the populations

that you say that you prioritize in your organization, then I think it's inauthentic at a minimum" (Mapp 2014, 84). While I think this viewpoint may be a bit extreme (4 of the former students and interns of color who participated in LAAS programs returned as full-time staff), she does have a point. I am certain my race, youth, and familiarity with the neighborhood surrounding the key sites are in great part why I was selected as a board member. Though a sincere attempt to diversify their organization, in effect it amounts to brown-washing because there is little to no recognition and integration of what that diversity means for the organization's mission and methods. That is, the focus is on how to get more people who look like me involved, rather than exploring if and how I, as a native Los Angeles resident and woman of color, would do things differently.

### ***Eurocentric (white) environmental stewardship***

Taking a closer look at stewardship, one is led to ask what "grow[ing] up the next generation of everybody" (annual meeting 2016) as stewards really means. The pressure to 'fix' the environment is placed squarely on the shoulders of individuals and the young. The lack of pressure on corporations and industry has been extensively critiqued in mainstream media. Indeed, the greater impact would come from a multinational corporation not watering its office lawns in a drought, rather than from a single person taking shorter showers. Despite the obvious, the onus of environmental action is often placed on youth who might one day make up the voting public. Further, echoing hegemonic ideals around American rugged individualism, each young person is expected to take action, to be inventive and be politically engaged. Indeed, environmentalism more broadly is generally linked to individual political involvement and civic participation. Teens and young adults are answering the call, as demonstrated by the 2016

lawsuit by 21 youth dubbed the “Climate Kids” against then-President Barack Obama and the US government for violating their constitutional rights and for discrimination (Kahn 2018). Their case is set to start trial at the US Supreme Court in October 2018. Young people worldwide (Uganda, the Netherlands, India...) have continued this trend, gathering to sue their governments over the damage to their planet and their future quality of life.

These practices are characteristic of the Anthropocene, a geological epoch wherein humanity is considered to have unprecedented impact on the Earth’s ecosystems (Crutzen and Stoermer 2000). The era is, perhaps appropriately, also marked by a global approach to environmentalism that Ogden and others call “Earth Stewardship” drawing upon global assemblage theory (Ogden et al. 2013).<sup>83</sup> In particular, an analysis of Earth Stewardship explores the local-global assemblages that drive socioecological change and resilience. In this way, Tsing has described global assemblages as “socioecological constellations” of varying levels and scales, and unequal environmental and social impact (Tsing 2005). While it is important analytically to understand how local communities or ecosystems link up to these global processes, at the same time I want to advocate for the specificity of local contexts in creating community-based environmental relationship and connection.

Ethics and morality are fundamental to hegemonic stewardship values: taking care of the environment and “speaking for the trees” is simply the right thing to do. To speak for the trees

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<sup>83</sup> Assemblage theory comes out of Haraway (2008) and Latour (1993, 2004) engagements with Deleuze and Guattari (1988).

goes beyond showing environmental care and interest, or even valuing life for its own sake as in deep ecology, instead drawing in philosophical questions around personhood, legality, and property. The question of whether trees and other inanimate life should have legal standing has been debated for decades (Stone 1972, Nash 1989). Some argue that recognizing the natural environment as a stakeholder is critical for the success of sustainable development initiatives, in particular because by recognizing the interdependence of living things necessitates representation. In the West, having a voice is often equated with political democratic participation (Liedtka 1999). Recently, the Whanganui River in New Zealand was granted personhood in 2014 through an agreement between the New Zealand government and representatives of one Maori community the Whanganui Iwi. As their late elder Niko Tangaroa remarked, “the river is the heartbeat, the pulse of our people... [if the river dies, we die as a people” (Tangaroa quoted in Kennedy 2012; see also Hutchinson 2014).<sup>84</sup> Similarly, in Ecuador’s 2008 constitution revision, nature, as personified by Pachamama, has been granted constitutional rights to be protected and respected. As Escobar explains, making nature a subject, “unlike the liberal notion, sees the self as deeply interconnected with all over living beings and, ultimately, with the planet as a whole” (Escobar cited in Ogden et al. 2015, 150).

Speaking for or on behalf of nonhumans through a fundamentally human framework has been critiqued as an anthropocentric political arrangement that does not represent a truly interconnected or multispecies approach (Haraway 2008). The politics of legality aside, it is also

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<sup>84</sup> Importantly, not all Maori feel the same way about rivers as people, pointing to the diversity within indigenous cultures and groups.

important to consider the implications of the politics of personhood in these cases. Indeed, the cases of Pachamama in Ecuador and iwi-Whanganui in New Zealand “are conceptions of personhood that, among other things, reject the very framing of personhood as something ascribed by humans to nonhumans,” valorizing a very different ontology of personhood (Youatt 2017, 41). Instead, in speaking for the trees, some suggest organizations and actors must “incorporate the environment as a part or extension of itself,” creating a mutual vision of the future that is accomplished through an ethic of care (Sama et al. 2004, 152). This in turn reconnects with the relationality aspect that is often missing from more holistic or ecosystem approaches that tend towards hierarchy and function, rather than dialogue and interaction. It would seem that we have not quite reached the death of nature, despite accelerating climate change and biodiversity loss (Latour 2004, Chakrabarty 2009).

### ***Implications for environmental education***

The morality of Eurocentric stewardship is part and parcel of environmental education goals, which include an intellectual “critical appraisal of environmental [situations], and the formulation of a moral code concerning such issues, as well as the development of a commitment to act on one’s values” (Stevenson 2007, 144). Embedded within this moral code is a sense of duty and responsibility for *caring for* the natural environment (see Nassauer 2011). The scientific content of programs is presented as a way to know nature well enough to care for it properly. Knowing the biology and physics of plants and animals and understanding their place in the ecosystem, i.e. knowing how to describe and compartmentalize them, leads to care. At the 2016 Annual meeting of the Los Angeles Audubon Society, the President described their education efforts as “growing the next generation of conservationists” through science learning



(fieldnotes). As Moore et al. describe, such narratives, “framed frequently under the rubric of Western science, often disenfranchise marginal communities from the right to steward local environments... Primitives, in this logic, cannot represent themselves nor can they represent nature. Powerful outsiders must preserve, protect, and rule them both” (Moore et al. 2003, 23). The powerful outsiders are therefore the white environmentalists who preserve, protect, and manage these native, natural spaces.

On flyers and pamphlets available at the Ballona wetlands, Ballona freshwater marsh, Madrona Marsh, Kenneth Hahn, and other such places, there is a marked emphasis on biophilic descriptions of nature, in addition to ecological knowledge. The Madrona Marsh Preserve’s Nature Center is self-described as “a place where the wonders of nature can be explored and enjoyed by all ages within the community.” The Ballona Freshwater Marsh similarly is described as “an urban oasis for people and wildlife alike.” Yet another pamphlet describes Baldwin Hills (where sits the KHSRA) are described as a “natural jewel” and “oasis of quiet and tranquility” where “wildlife makes its home [and] is in need of our protection.” Biophilia for charismatic megafauna is a key part of nature tours; docents and students alike become extra excited when a hawk is seen, or coyote scat nearly stepped on. Coyotes, the largest animals in the urban core, are representatives of ‘real’ nature and wild spaces. Seeing them makes the landscape authentic, and “appears to confer upon its habitat vitality and animation” (Kellert 1993, 50). Upon seeing the death of a wolf, Aldo Leopold remarked “we reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes - something known only to her and to the mountain” (Leopold 1966, 130).

An anthropological analysis shows that such values can be problematic in that they reinforce Eurocentric nature-culture dichotomizations that reproduce dominion hierarchies of man over nature that many scholars have recently and repeatedly debunked (Braun 2002, 2003; Cronon 1996; Wolch and Emel 1998). Further, they fail to account for the social and political inequalities and racial assumptions embedded in contemporary American environmental action and discourse. They also privilege knowing the minutiae of species inner mechanics over the relationships between individual entities, and how these relationships and attendant depictions are tightly woven in with the threads of human society. And yet, within this ethics of paternalistic care for the environment are seeded glimmers of a more interactional, rather than transactional, approach. When asked what students learned from the program, docents' answers were almost always couched in terms of abstract concepts like appreciation, awe, and love for/of the environment. Docent Laurie believed that students received a "better appreciation of things outside themselves," while a staff member said the goal was to make them "more aware... inspire them to be a careful observer... and change the phobic thinking." These concerns hint at a desire for a more inclusive value system around interconnectivity where as Stacey described it, "the value of nature is all-encompassing" and is laced with emotion, empathy, and morality. Krasny and Tidball summarize this kind of work as a form of "civic ecology," where "residents who take on stewardship ... not only enhance local ecosystems, but also may build social networks and otherwise contribute to community well-being" (2009, 466).

Lucy, a graduate of the Greenhouse Program framed this morality in a language of care: "After this [the program] it made me want to stay, there's more I can do here. I used think, all I knew about LA was, it's hot in summer. And I wanted to get away. I was more interested in trees. Now

I do my mom's garden all the time, these [weeds] have to go. I planted some poppies and they're still blooming. I learned so much I learned to plants. So I wanna go back later and can say that's my plant but if I leave I won't be able to see it." She spoke of watching the plants grow and bloom almost as tenderly as a parent might speak of watching and wanting to be present for them as they grew up.

### ***The long game: future stewards***

These two-hour once per year environmental education tours are seen as one step on the path to getting students to this level of environmental care. That path is a personal choice that relies on a previously cultivated sense of moral responsibility towards stewardship of the landscape.

Students on a Ballona tour were informed that by participating at the "Restoration station" they would "help the environment," simultaneously making the environment a vague, ill-defined entity and separating humans from it. They were also told that the purpose was to "make sure the *right* plants are here," and in so doing they "made a big difference" (field notes). In engaging in restoration through the removal of ice-plant, students are connected with people who care about the wetlands, in opposition to those that don't: docents remark that "ice plant is left over from when people didn't value the wetlands" (field notes).

Outdoor Program Director Cindy remarked that the added value of LAAS programs is that "we feel like the next generation of young people... [it] sits on the shoulders of them the responsibility of stewardship, the importance of preserving the environment" (Hardin 2016).

This perspective links environmental stewardship to civic responsibility; as Martina Ramirez, a local biology professor who regularly participates in docent trainings remarked, I "feel we have

an obligation to speak for nature, if not then we are complicit” in its destruction. Some docents indirectly recognize the inequities of which students can or are able to become the environmental activists of the future, remarking that “it’s the Mar Vista kids who are the future voters.” Within the LAAS education program school-shed, the Mar Vista neighborhood and schools are solidly middle-class, and hover at about 50% white. The northern portions of Mar Vista in particular are still predominantly white, with homes valued at an average of \$1.5 million in 2018 (Realtor.com 2018). The docent’s remark was therefore offered as justification for their inclusion in a program intended to reach underserved Title I schoolchildren, and also a sad kind of acceptance that despite their efforts, the profile of future environmental actors would not change.

### ***Subjugated environmental values & practice***

#### *Historical/ongoing racism*

This research draws on political ecology to examine the “material conditions that comprise urban environments are controlled, manipulated and serve the interests of the elite at the expense of marginalized populations” (Heynen et al., 2005, 6). In the United States, scholars (Byrne and Wolch 2009) examine power dynamics in the context of urban park use, pointing out the ways in which despite attempts to increase park access, urban parks are still primarily visited by white affluent residents. LMU conducted a survey during approximately the time period as this research, evaluating park use in the Baldwin Hills Parklands. Out of 12,709 users, the majority being recorded at Kenneth Hahn and the gateway parks of Norman O. Houston and Rueben Ingold Park (neighborhood walking track), only 1,747 surveys were collected. The majority of surveys were collected at locations outside of the highest-use areas of Kenneth Hahn, Norman O. Houston park, and Rueben Ingold park. The survey also evaluated the place-attachment of park

users, finding that homeowners and upper-income users had significantly higher levels of place-attachment than their renter or lower-income counterparts (survey).<sup>85</sup> This analysis is critical when considering how to use place-making activities as a way to build communities that care about and feel connected with the natural landscape.

The disconnect between minority groups' actual nature ethics in comparison to hegemonic nature narratives thereby illustrates the power and influence of the ways in which white Americans view, value, and experience nature. Indeed, this was persistent question as I attended the tours. Are the tours truly made relevant to these students' lives? And, how do they integrate an awareness of the conflicting cultural histories around nature? Let us remember, as Finney so clearly puts it, that "while Pinchot and Muir explored, articulated, and disseminated conservation and preservation ideologies, legislation was being enacted to limit both movement and accessibility for African Americans, as well as American Indians, Chinese, and other nonwhite peoples in the United States" (2014, 37). American Indians in particular suffered from this erasure, being physically removed from National Parks, or made to act as timeless figureheads of an ancient natural culture (Spence 1999). That is, while white America was creating a narrative of the innate value of accessing nature and wilderness places, nonwhites were being restricted in their movement and access to land. Thus underlying assumptions of Wilderness Act of 1964 presumed a certain universality to ideals of wilderness preservation and use, "without

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<sup>85</sup> The survey did not control for number of years living in the neighborhood, or whether the respondents considered themselves 'native' Angelenos. Gender and educational level did not have a significant statistical link to place attachment, and race played only a minor role, with Latinos rating slightly higher on place-attachment than non-Latinos.

considering the underlying structural and systemic inequalities that prohibited ‘all men’ from participating in and actively enjoying the American wilderness” (Finney 2014, 47). That history is rarely acknowledged, and certainly was not raised during the year and a half I participated in environmental activities and programs in my predominantly African-American neighborhood.

Blackness and nature in the United States are closely intertwined in colonial racism and its ongoing legacies, in particular via racist tropes like apes and workhorses, and in the very real cultural memory of agricultural slavery and the terrors of dark isolated places in the Jim Crow era. In particular, it is important to consider how collective memory functions as a tool for remembering, reinterpreting, and re-righting the past with an orientation for present and future action (Eyerman 2001, Irwin-Zarecka 1994). While memory is not racially or communally monolithic, for African-Americans, the collective memory can be said to be “unified by enforced subordination and oppression” of slavery and Jim Crow (Eyerman 2001, 14). In fact, in many ways slaves had more environmental knowledge about their surroundings than their white slave masters, pointing to a hidden history of Black environmental experience, both of knowledge and of suffering, that is under-recognized in today’s environmental movements (Stewart 2006, Blum 2002). During the era of slavery the wilderness was a “place of refuge from the horrors and strictures of slave life,” where “black slave women closely linked their well-being and sources of community power to their environment” (Blum 2002, 251, 264). With the end of Jim Crow and “separate but equal” laws, Blacks became constrained in their access to nature spaces. Even today “spatial mobility for African Americans can be limited by a lingering concern for their safety while crossing through territory deemed ‘white’” (Finney 2014, 60). Such narratives are problematic in that they tend to deny the numerous and varied ways a minority group’s access to

or use of natural resources and spaces is impacted by historical and contemporary institutional structures. Paying close attention to the ways in which the African-American experience has collectively been defined as one of “struggle, exclusion, and pain, particularly in relation to place” (Finney 2014, 18) is particularly relevant in the context of place-based environmental education.

Essentially, in evaluating differential nature use, we must take an intersectional approach that considers demographics, park design and ecology, historical processes of landscape provisioning, and individual perspectives (Byrne and Wolch 2009). Perception and representation are as important as history and experience. To clarify, these groups are marginalized in very different ways, though the lasting impact that cultural and political histories have had members’ environmental ethics and relationships should not be under-estimated. For indigenous peoples, histories of land theft and genocide are swept aside, and their environmental ethics oversimplified and repackaged into a Eurocentric vision of the ideal human-nature relationship. Contrastingly, minority groups like African-Americans were not erased but rather forced to labor for the dominant society, such that their concerns are less about regaining autonomy over place and place-based identities, than cultivating equality within the American democracy through place ownership and “homeplaces” (hooks 1990).

As Quizar argues, “black people’s relationship with the natural world in the United States has been profoundly fraught by the collective impact and memory of agricultural enslavement and racial terror. A tree, in Black poetry or Black music, is just as likely – or perhaps more likely – to evoke a lynching as a celebration of nature” (Quizar 2018, 86). Certainly, this is not true of the

imagination and experience of all Black people, but the lasting effects of this kind of traumatic history should not be underestimated. These narratives are born out of colonial associations of Blacks with nature, and the violence and forced natural labor of slavery. Compounding centuries of slavery, the Emancipation Proclamation and subsequent Freedmen's Bureau of 1865 was to assign land to former slaves. Just a year later though, that possibility was revoked by Congress, forcing freedmen off their land (Finney 2014). Historian Paul Outka draws in the near-simultaneous development of the National Parks (Yosemite and the Sierra Club were created in the late 1800s), arguing that:

“this legacy – in which whites viewed black people as part of the natural world, and then proceeded to treat them with the same mixture of contempt, false reverence, and real exploitation that also marks American environmental history – inevitably makes the possibility of an *uncomplicated* union with the natural world less readily available to African Americans than it has been to whites” (Outka 2008, 3).

### *Contemporary Discrimination*

The high use areas in the LMU survey are also those in closest proximity to the majority African-American neighborhoods of Baldwin Hills and Ladera Heights. Research has shown that racial minorities are reluctant to complete surveys even anonymously, and there is possible bias on the part of researchers to subconsciously select those users who they think would be amenable to survey completion. The demographics and opinions of the 12,000+ park users may therefore likely not reflect those who completed the surveys. This disparity demonstrates the ways in the right to the city, and the related right to nature, are not universally experienced by all urban residents, due to political and class inequality coupled with institutional racism (Lefebvre 2003). Only when environmental education begins to take both political inequality as well as cultural and ideological diversity into account can it truly support the cultivation of an array of community-based urban environmental stewardship.



In urban Los Angeles, the dearth of green spaces is woefully apparent. Speaking to political economy and ecology, Heynen, Perkins and Roy summarize that “capitalism, and more specifically, neoliberal capitalism, although geographically differentiated across global axes, is now the ubiquitous mode of production affecting the development and environments of cities” (2006, 3). Coupled with middle class social desires for private space, in Los Angeles, very little land was set aside for public green space in part due to the city’s early design as one of low-density homes with private gardens, (Wolch et al. 2005). As the city expanded in geography and population, older communities densified, and park finance and planning intentionally advantaged white, suburban communities (Byrne et al. 2007). Simultaneously, in the early 20<sup>th</sup> century east Los Angeles, and some areas of south Los Angeles, were rapidly developed for industry and manufacturing, which coincided (causality is unclear) with the growth of nearby low-income wage workers and communities of color. Essentially, urban green environments (and their dearth) result from the commodification of urban nature (Castree 2003; Kaika 2005; Keil and Desfor 2003; Swyngedouw, Kaika, and Castro 2002). This context gave rise to urban environmental racism wherein these low-income communities of color were and continue to be disproportionately exposed to environmental toxins and hazards from the industrial area factories (Morello-Frosch et al. 2002, Pulido et al. 1996). This urban environmental injustice was compounded by institutionalized racism such as the city’s 1904 zoning code that protected the already affluent majority white Westside from industrialization, and then redlining covenants of the 1930s that prevented minorities from buying homes in these neighborhoods.<sup>86</sup>

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<sup>86</sup> Specifically, the Federal Home Loan Board conducted a City Survey in 1935 and mapped and ranked neighborhoods, categorizing them as A (best investment - green), B (desirable - blue), C (in decline - yellow), D (hazardous -red). The “red” communities generally contained minorities, either Black and Latinx workers, or newly arrived immigrants. The system also drew private investment away from these communities, forcing neighborhoods

In such a racially segregated landscape, it is no surprise that these subjugated communities also disproportionately feel the city's lack of public green spaces, and thereby consume less of its benefits (Heynen et al. 2006). A 2010 report by the Trust for Public Land showed the city of Los Angeles holds 7.9% of its land acres as parks, while comparable high density cities like New York, Washington, D.C., and San Francisco hold 18-19.5% of its land acres as parks (TPL 2010). In an already park-poor city, urban minorities are in fact the most park-poor of all groups. A public health study in Los Angeles from 2016 found that "African Americans and Latinos were more likely than Asians and Whites to live in cities and communities with less park space per capita" (Cities and Communities 2016). Only 36% of children have easy access to public parks, and African-American neighborhoods have 17% fewer acres of parkland than their white counterparts (Wolch et al. 2005, Byrne and Wolch 2009). For example, LA County conducted a Parks Needs Assessment in 2016, seeking to gauge the role of parks for local residents. Flyers for the Parks Needs Assessment of 2016 asked "What will make your family and your neighborhood healthy, happy and out getting physical exercise?" Fallen Fruit, an arts & environment non-profit that frequently partners with the County on park-related events, asks city-dwellers to reclaim and change their neighborhoods and "transform the city" through a sustainability approach - "Our city is filled with useless ornamental landscaping and more cement than grass. What if we replaced all these little shrubs with fruit trees? ... Plant the city, share with your neighbors and change the texture (and flavor) of your neighborhood." Their efforts are constrained by valuations of property ownership that makes poorer urban residents

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to "fall into a vicious circle of decline: the inability to access capital lead to disrepair and the physical decline of a community's housing stock, which in turn reinforced the redline designation" (KCET). The map legends were blatantly racist, giving poor scores to neighborhoods with a "sprinkling of subversive racial elements" in reference to "concentrations of Japanese and Negroes" (Brooks, *Alien Neighbors, Foreign Friends*, 117.)

“unable to produce local and healthy urban ecologies for themselves” (Heynen et al. 2006, 5). Indeed, the majority of the recipients of the organization’s free trees are (upper) middle-class homeowners. Despite desires to plant the trees on parkways and other publicly accessible spaces, many continue to plant them in their own yard spaces, negating the value of increasing urban trees for lower-income residents who do not own property.

To put it even more starkly, Whites average 31.8 park acres per 1,000 persons, Latinx average 0.6 park acres per 1,000, and African-Americans average 1.7 park acres per 1,000 (Wolch et al. 2002). Proximity is a determining factor in park access, with over half of a given park’s visitors living within half a mile of the park (Cohen et al. 2007). In terms of National Park visits, the numbers are even more stark. Though non-whites make up nearly 40% of the U.S. population, they comprise just 20% of park visitors. For example, less than 2% of visitors to Saguaro National Park, located in a community that is 44% Latinx, self-identify as Hispanic (Rott 2016). For these reasons, “access to nature, in the traditional Romantic sense, is not a right but a privilege of race and class” (Rasmussen 2017). The idea of untouched nature as an exclusionary ideal has been produced by a dominant white majority with the financial means and leisure time to access such imaginary spaces. Here a political economy<sup>87</sup> lens is additionally useful in unpacking the relationships between work and leisure – certainly, outdoor adventures like mountain climbing, backpacking, and the like are a site where leisure and labor intersect.

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<sup>87</sup> See Baudrillard 1975, Marx

Proposition K was approved in 1996 as a city-wide initiative to respond to the inadequacies of childhood infrastructure, inclusive of the obvious need for more parks and recreational facilities, generating \$25million per year for 30 years via real-property tax assessments. Despite its social and environmental justice desires, particularly for children, at the time of the study the majority of Prop K funds have been directed towards improving existing parks, rather than investing in new properties (Wolch et al. 2002). This is problematic in a context where the neediest neighborhoods have insufficient parks to begin with. Importantly, South Central, a high poverty, park-poor, with highest share of children received only half as much Prop K funding as the affluent West LA neighborhood (Wolch et al. 2002). The links between capitalist desires for land development, and the uneven nature of urban ecology, can thus be made more explicit through a political ecology lens.

Kenneth Hahn State Recreation Area, a 400-acre green space atop the Baldwin Hills is surrounded by communities of color. These range from the crime-ridden and low-income neighborhoods like the “Jungle” off of Coliseum and Rodeo at the base of the Baldwin Hills, to middle and upper-middle class residences perched atop View Park, Windsor Hills, and Blair Hills. Yet the proximity of Kenneth Hahn, the geographic and road infrastructure make it difficult to access. The park is at the top of a large hill bordered by two main traffic arteries, neither of which have sidewalks for pedestrian access. There is no bus stop at the park, and until 2013 only one entry point – a road off of one of the main arteries. Parking on weekends is \$6 per vehicle. Finally, the first pedestrian access to the park (part of the larger Park-to-Playa 13-mile trail project) opened during my first fieldwork year in 2013.

The access point and trail were funded by a grant by the Baldwin Hills Conservancy (via Prop 40), and \$100,000 contribution from the office of LA County Supervisor Board Chairman Mark Ridley-Thomas. Still the pedestrian access point on the south-east corner of the park benefits the hilltop residents in the more affluent middle and upper-class residences, but does nothing to help the lower-income residents in the geographically lower neighborhoods to the north of the park. Attempting to rectify access problems, the county has created “The Link”, a “community shuttle” service from the park to the city Metro stop at the intersection of La Cienega Blvd and Jefferson Blvd, for a nominal 25-cent fee. Yet, in a two-year survey of the Baldwin Hills Parklands, the vast majority of park users access the sites by car (84%), and nearly 90% were not even aware of the county shuttle (Romolini et al. 2017). This points to the persistence of urban nature inequalities, but also to potential problematics that don’t make park use relevant to the lived experience of these communities.

In addition to inequities of access, the diversity of nature engagement, and the consequent potential of irrelevance of white Eurocentric modalities and expectations of park use for different communities remains under-analyzed. As founder of Outdoor Afro Rue Mapp remarks, “when I ask Outdoor Afros what the number one reason is that they’re not getting out, it isn’t about historical stuff usually. It is: how can I practically fit outdoor experiences into my life?” (Mapp 2014, 78). Perhaps most critically, they also fail to account for cultural memory that, while not always a determining factor, certainly influences contemporary minority experiences of nature. Compare, as Finney puts it, the “‘first’ African-American environmental experience on American soil” (slavery working a white master’s land) to the first experience many European immigrants who arrived as free colonists, or claimed large swath of the ‘Wild West’ under the Homestead

Act in 1862 (2014, 35) - how can these two very different histories not impact contemporary environmental practice? Indeed, further inequities are deeply embedded in the African-American (as well as Latinx) farming experience. BFAA president argues that the drop from 1 million to about 5,000 Black farmers over the last century is due to systemic racism. The landmark Pigford vs USDA case was a civil rights class-action lawsuit addressed this point, with plaintiffs arguing that the USDA discriminated against Black farmers by denying them loans. They reached a settlement in 1999, which paid out \$1 billion to nearly 16,000 growers. More recently in July 2018, another case has surfaced, with a group of Black Mississippi farmers suing the nation's largest independent seed producer Stine Seed, this time for intentionally selling defective seeds to African-American farmers (Ortiz 2018; see also Goldstein 2018).

The interplay of environmental justice and environmental education cannot be fully discussed without attending to the question of inequitable nature access for the non-dominant groups such programs target. The subject of extensive scholarship in wilderness spaces, the inequitable interplay of race and nature with wilderness spaces has profound consequences on the ability of such communities to 'go to nature' and places like Yosemite or Yellowstone. The National Park Service is aware that it's users and staff (80% white) don't reflect the diversity of the nation, and have an "Office of Relevancy, Diversity, and Inclusion" to address the problem. In October 2017, the Trump administration released a proposal to more than double the parks' peak-season entrance fee at 17 of the most popular National Parks, in order to pay for badly needed maintenance work. Following significant public comment (over 100,000 comments) however, the NPS revised their position, commenting that "your input has helped us develop a balanced plan that focuses on modest increases at the 117 fee-charging parks as opposed to larger

increases proposed for 17 highly-visited national parks,” while annual passes would remain the same (NPS 2018). Indeed, many who commented remarked that they would no longer be able to afford to visit, with low-income (predominantly minority) families being the hardest hit.<sup>88</sup>

Frequently in the urban setting, when the intersection of race and nature is addressed it often takes the form of excursions to escape the limited possibilities of urban nature. The Girl Scouts and Boy Scouts of America, despite recent controversy over allowing LGBTQ youth into troops, do have a century-long history of inclusivity dating back to 1913 when Black girls joined the nation’s third Girl Scout Troop.<sup>89</sup> A key component of scouting is environmental stewardship, though these stewardship badges, rewarding activities like “Eco Trekker” and “Adventure Camper” continue to align primarily with white Eurocentric environmental experience and ethics. That is, they take girls out of the city and into the wilderness to strengthen their confidence and “ignite their interest in environmental advocacy” (Girl scouts 2018). Sleep-away camps like the wilderness education programs of Outward Bound similarly “take students into pristine wilderness environments and help individuals discover strengths they didn’t know they had” (Outward Bound 2018).

Yet another program, the New York-based Fresh Air Fund actively works to get kids from low-income New York City communities “out of the city and into fresh air” through homestay

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<sup>88</sup> According to a survey by the Outdoors Alliance for Kids, 64% of the public said they’d be less likely to visit Parks with the fee increase, compared to 71% of families making under \$30k (OAK 2017).

<sup>89</sup> National Board president Dr. Gloria Scott, a Black woman, advocated for increasing Scout diversity, holding several conferences including 1970’s Scouting for Black Girls.

families along the eastern seaboard and southern Canada. Without doubt, these efforts are all valuable initiatives in addressing basic questions around environmental access for diverse populations, whether they be girls, minorities, or the disabled. My concern then is two-fold: first, that such programs insist on taking youth out of the city, rather than capitalizing on the power of local urban nature experience, and second, that they do not stop to diversify the underlying messages around environmental stewardship, experience, and ethics.

### *Turning to representation*

All too frequently, environmental education programs neglect integrating these other perspectives and realities, working instead from the assumption that mainstream environmentalism values are common-sense and based on a common history, and that natural science knowledge is objective fact and therefore the primary content of nature learning. In recounting these tales, their influence on perception and expectation make racialized nature a self-fulfilling prophesy. It makes it so that we don't see the *other* stories held simultaneously by similar groups or different individuals within the same group, because they don't reflect "the story we tell ourselves about ourselves" (Geertz 1973). The fact is that the environmental movement remains predominantly white and wealthy. As one commentator remarked tongue-in-cheek, "American environmentalism is a secular religion of the white middle class" (Thiele 1999, 149).

McDonald (2008) argued that whiteness as a category focuses attention on "the production and reproduction of dominance rather than subordination, normativity rather than marginality and privilege rather than disadvantage" (236). To this point, Roberts (2009) offers ethnographic



examples of the ways in which some white park visitors reject NPS efforts at diversifying park user profiles. In another anecdote, a park user blatantly ties outdoor activity to identity, asking “does it make me less black because I like to go hiking?” (Roberts 2003, 174). In terms of park use, African-Americans tend to enjoy social, and sports-oriented park settings, whereas whites prefer individual exploration and excluded nature. Asians seem to value scenic beauty, and Latinx prefer more developed environments with group activities facilities, with the reasons for visiting parks largely corresponding with the type of park setting preferred (Gobster 2002; Ho 2005; Washburn 1978). Certainly, I would be remiss if I did not note exceptions, and variations based on individual experience, and the differences in urban and rural settings, and lack of access due to income disparities or distance. In considering the variety of ways nonwhites engage with nature, it is important to also analyze how these ways are either constrained or subjugated by the dominant white narratives of appropriate nature use. Too often, subtle and overt prejudice and discrimination lead people of color to avoid some park and wilderness spaces.

Similarly, representation matters. If people of color see others like themselves in TV, outdoor magazines, or in park staff positions, perhaps more would feel more comfortable engaging in those activities. As Braun argues in his discussion of the intersectionality of race and nature in the world of adventure travel “remained the preserve of white, middle-class travelers,” and is “constitutive of white middle-class identities,” erasing the non-white adventurer from discursive and visual representation (Braun 2003, 177-78). As Stuart Hall posited, representation is a substrate onto which narratives of “cultural belongingness and difference” are inscribed (Hall 1997, 230). And, as Finney puts it, “what people do not see makes it more challenging for them to imagine” (Finney 2014, 81).

### *Alternative use*

As Bryan Rasmussen self-reflexively writes in *Boom California* (2017), “whereas the ideal nature experience promoted by parks frequently borrows on “the solitude and quiet of a John Muir photo,” Latinx “might want to have a different experience in the outdoors.” Often this experience is a louder, more family-oriented gathering that frequently rubs traditional white middle-class park users, whether in an urban pocket park or a National Wilderness, the wrong way. As a result, these groups feel that “this is not our space” (NPR 2017). For example, a white woman called the police on a group of Black people who were using a charcoal grill in a non-designated area of an Oakland, California park. While the caller framed it as a question of legality, the racial undertones were obvious. In an example of the power of community organizing, Oakland residents organized a “BBQ’n while Black” family-friendly event in protest at the same location.

It is easy to assume that African-American people “don’t do nature”. The idea is reinforced by statistics illustrating how African Americans exhibit the lowest rates of participation in normalized outdoor activities such as fishing, hiking, wildlife photography, etc. (Floyd and Shinew 1999, Solop et al. 2003). Such low numbers persist in professional environmental sectors as well – for example out of the 44,000 employees of the National Forest Service, only 3% identify as African American, a far cry from the 13.6% of the U.S. population identifying as

Black (US Census 2010).<sup>90</sup> In addition to a lack of participation and representation in normative white outdoors activities, Blacks are also subject to historical processes and colonial assumptions that simultaneously embed Black people in nature, as well as make nature a dangerous place for black people to visit. Menacing mages like that of Black athlete LeBron James holding the fair-skinned supermodel Gisele Bundchen, or former President Obama depicted as a chimpanzee in a political cartoon demonstrating the persistence of equating Blacks to less-than-human (Haraway 1988).

Community experience intertwined with cultural history must be acknowledged in seeking to understand the relationship between African-American people and the outdoors. Many Korean-Americans go hiking because they and their parents and grandparents did similar activities in South Korea, which is about 70% mountains. Latinx families enjoy soccer and large family cookouts in the park. African-American families often have generations of cultural memory and anxiety about wilderness places dating back to slavery and lynching in the woods of the South. Jim Crow segregation laws prevented African-Americans' access to swimming pools and public beaches (Jefferson 2009)<sup>91</sup>; some scholars argue this is why so many African-Americans of my mother's generation don't know how to swim (Wiltse 2007).

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<sup>90</sup> Historically, in the early days of environmental work, the Civilian Conservation Corps under Roosevelt's New Deal was a successful effort at creating jobs and practicing conservation, but these groups were segregated.

<sup>91</sup> Inkwell beach in Southern California, named as such because it was a primarily black beach

Thankfully, though my mother could not swim, she made sure my brother and I learned; a move at odds with the estimates put out by USA Swimming that 70% of African-American children cannot swim. African-American Simone Manuel's 2016 Olympic gold in swimming has been discussed a powerful first step in changing that history. As the first Black female to win an Olympic gold medal in swimming, she is deeply aware of her race, and has remarked that "I tried to take [the] weight of the black community off my shoulders. It's something I carry with me. I want to be an inspiration, but I would like there to be a day when it is not 'Simone the black swimmer'" (Associated Press 2016). In the first half of the twentieth century, a number of beaches across the country, including one in Santa Monica, were derogatorily called Inkwell Beach because African-American families frequented it.<sup>92</sup>

Fortunately, a number of groups like Outdoor Afro and Latinos Outdoors are working to change that, seeking to "redefine the outdoors and nature" (Code Switch 2016). In one study, the authors focus on collective memory and its impact on "black impressions of wildlands because these landscapes are considered to form the core of American national identity" (Johnson and Bowker 2004, 58). While for mainstream environmentalists, wildlands are places of succor and respite and in need of care, for African-Americans, they can be "sick places" evoking distant yet terrible cultural memories (Bixler and Floyd 1997; Taylor 1989; Tuan 1979). It is not that Blacks are not concerned about nature; but rather, instead of a focus on wildlife habitats their concerns might be for community-based environmental integrity.

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<sup>92</sup> Similarly, Virginia Key Beach in Miami Florida opened in August 1945 as a "black beach". Decades later in 2002, the site was added to the National Register of Historic Places for its significance to local black history.-

Still, despite these histories, the concerns and interests of contemporary Blacks are varied, if far less represented and supported. Countering the example of the African-American 5<sup>th</sup> grader who vocally disapproved of nature work, I later interviewed a Dorsey High School alum and current LAAS staff member with a very different viewpoint. An African-American kid from the inner-city, he explained how “I tried growing a plant once in my window and it didn’t work. My parents weren’t very interested. I’m pretty much the only person who is like that in my family. I’ve always liked being outside, its just really fun to me. The more I got into it the more I wanted to be out there.” Rather than continually trying to integrate Black faces into white environmentalisms, instead we need to re-center collective memory and acknowledge the complex realities of African American nature experiences. In doing so, it creates space for African-Americans to “construct *environmental spaces* in our own image” (Finney 2014, 66).

This is precisely what is occurring in non-dominant minority neighborhoods of Los Angeles. Organizations like Outdoor Afro (“where black people and nature meet”) and Latino Outdoors (“connecting cultura and community with the outdoors”) are providing a space for these alternative realities, in their case for African-American people to be in nature with one another, and to reinforce that connection through sharing histories of African-Americans in nature. For example, in Los Angeles, in the last two years OA meetups include a range of activities such as biking, hiking and camping, as well as visits to the California science Center during NPS’ Centennial celebrations to view a film about National Parks, and an urban walking tour of

downtown LA highlighting influential Black figures of city history.<sup>93</sup> Educators and scholars alike must navigate between acknowledging differential histories and experiences, while also not stereotyping groups and individuals. To avoid that, educators first need to exhibit cultural awareness, telling the diverse ethnic histories of a place regardless of who is participating. Second, by re-centering program design from within and specifically for communities of color, attending to the processes of systemic racism and economic subjugation that colors their lives. Founder Rue Mapp summarizes it as follows: “people are already creating their own destinies and pathways to engage with nature. Making those visible and supporting those existing pathways, I think, is really what’s needed here” (Mapp 2014, 84). The best way to do that is through cultural awareness and whole-community involvement with our natural and wild spaces.

Latino Outdoors, a San Francisco-based organization like Outdoor Afro also seeks to “bring *cultura* into the outdoor narrative and connect Latino communities and leadership with nature and outdoor experiences. We connect *familias* and youth with nature” (Latino Outdoors 2017). It is framed around a specifically Latinx cultural framework; the core values embedded in their strategic plan include “familia, comunidad, cultura, access, and service”. It reframes conservation and education within a Latinx cultural and community history; as one young participant says, when many Latinx urbanites venture outdoors, “bringing in culture and storytelling helps celebrate the identity of people participating” (Latino Outdoors 2018). For

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<sup>93</sup> I intentionally did not research activities at Santa Monica Mountains Recreation Area and Griffith Park due to their distance from the communities targeted by LAAS programs. These communities are primarily in South or East LA, so it was important to study nature spaces in proximity to their neighborhoods. Similarly, I did not integrate the LA River in this study, despite its location in East LA, because it is not part of the Ballona Creek Watershed, which functions as an important delimiting frame for place-based learning and the school-shed model of LAAS.

Outdoor Afro, cultural stories also help ease often deep-seated anxieties that participants feel about being outdoors, by “telling stories about how [Black] people have always been there” (Polk in Karlson 2018).

These efforts work to re-center cultural practice and history, and the lived reality of being Black or Latinx (or generally of color) in a white society. They thus readily recognize what mainstream environmentalism tends to ignore. For African-Americans, that “being in outdoor spaces, particularly in the South, when you’re Black, gets interesting” (Clark in Karlson 2018). For Latinx, as one LO participant described, this can take the form of “barriers that make it difficult for people to connect with the outdoors such as language, familiarity, and accessibility” (Latino Outdoors 2018).



Figure 37: Logos for Outdoor Afro and Latino Outdoors

Certainly, getting “out” in nature and wilderness is often perceived in popular culture as a white activity, despite the political tethering of race and wilderness; after all, the landmark Civil Rights Act and the Wilderness Act were both signed in 1964. Still, at more than one family gathering,

when mentioning my own multiracial family's plans to go camping, several members of the African-American side of my family would jokingly hum the theme to *Deliverance*, implying the embedded dangers of "the great outdoors." One African-American comedian, perhaps invoking the darker histories of African-American environmental relationships joked "white people need to stop asking African-American people to go camping, we don't wanna go!... Why would we wanna leave the comfort of our own bed to sleep on the ground, in a bag!" Further, as journalist Meraji writes, "for many African-Americans, especially those of an older generation, being outside brings up concerns about safety [due to segregation] ... and that uneasiness contributed to the view of outdoor recreation as 'white'" (Meraji 2015). As an advocate for diversifying outdoor engagement writes, there were often jokes about "the perils of being lynched or attacked while collecting firewood after the sun went down. Our cultural history taught us what to expect" (Nelson 2015). These issues intersect race with class, making the outdoors and associated conservation efforts tools of statecraft to subjugate non-dominant populations, a history that continues to discourage minorities from outdoor activity in the same spaces and manner as whites.

In addition to the question of representation of Black people engaging in "white" outdoor activities, I argue that it is equally important to recognize and valorize alternative nature knowledges and experiences. It is critical to articulate that, as Finney makes clear, "there is no monolithic African American environmental experience," just as there is no monolithic white environmental experience (Finney 2014, 98). Rather, there is the way in which a collective and structural experience can influence individual desires and actions. According to Finney, "the experience of being black trumped any place-based assertions related to environmental



engagement” (99). That is, regardless of gender, class, or location, Blacks tend to relate to and engage with the environment in specific ways. Low-income communities, especially those that experience the compounding effects of racial stigma, do find ways to participate in nature activities, though these activities might be in formats and places that aren’t valued, represented, or sometimes even authorized by white mainstream environmentalism. For example, one commenter of an NPR article described how REI ads only show young white men with high-end gear engaging recreationally with the outdoors; “they’re not gonna show us with our tire rims and refrigerator racks grilling carne asada” (Bilich 2016).

All too frequently, environmental education programs neglect integrating these other perspectives and realities, working instead from the assumption that mainstream environmentalism values are common-sense and based on a common history, and that natural science knowledge is objective fact and therefore the primary content of nature learning. In recounting these tales, their influence on perception and expectation make racialized nature a self-fulfilling prophesy. It makes it so that we don’t see the *other* stories held simultaneously by similar groups or different individuals within the same group, because they don’t reflect “the story we tell ourselves about ourselves” (Geertz 1973).

The Outdoor Foundation found that differences in engaging in outdoor activities among African-Americans and Latinx was not because they didn’t care about living diversity as posited by Kellert following E.O. Wilson’s biological determinist approach. Rather, the motivations were different than those common to hegemonic white groups; “talking to new/varied people” was a greater motivator for minorities’ outdoor engagement than for whites for example. Even

important non-white figures in history such as Harriet Tubman are denied their actual “outdoorsy-ness”. Despite wayfinding her way through wilderness areas at night, “to call Harriet Tubman a hiker, people don’t do that” (Polk in Spillman 2016). Alternatively, when minorities do seek to engage in activities seen as “white,” often initial engagements are hesitant. As geographer Jonathan Hall quipped about his early forays into hunting in West Virginia, “I’m not about to drive anywhere in rural America with a rifle in the back of my Subaru and hike into a public space where white people have rifles aimed at brown animals... adventuring in the outdoors just isn’t the same for black people” (Hall 2018).

To combat these racialized assumptions about who belongs in the outdoors and what valid outdoor activity looks like, it is necessary to integrate not only diverse faces in the outdoors, but also diverse outdoor activities and tell those stories. Betty Reid Soskin is a 97-year-old African-American woman and longtime National Park Service ranger at the Rosie the Riveter National Historic Park. Her great-grandmother was born a slave. As she puts it, “what gets remembered is determined by who is in the room doing the remembering” (Chauhan 2016). In this way, representation, of non-dominant faces as well as histories of nature space is critical to create and acknowledge politically informed and socially situated diverse uses and perceptions of nature. In my student surveys I made sure to include a question asking students how often they had been to ‘nature’, however they define it. In reviewing the responses, I initially assumed that most students, following what the lead docent had told me about their limited experiences, would reply that they had never, or only once or twice, been to nature. To my surprise, out of 230 responses, only 10% (n=23) responded that they had never been to nature, or did not know if they had been. If we enter the conversation assuming they hadn’t, then it is easy to discount the

many answers such as zoo, park, pet store, plant store, my yard, the aquarium, as not being ‘real nature’.

We must therefore rethink what ‘real nature’ is, and how different groups define nature if we want representation to be truly reflective of the range of human interest, experience, and histories. Black and Latinx people do “do” (and have done) outdoors, just in ways that may be different from practices like camping at Yosemite popularized by white environmentalists (Romolini et al. 2017; Braun 2003). Agriculture for example, whether on an industrial scale, or at the community garden or balcony potted garden levels, is an often-discounted form of nature involvement experience. Migrant Mexican farm workers and urban community farms (Hondagneu-Sotelo 2014) in particular demonstrate alternative nature experiences that incorporate labor inequalities (Holmes 2013).

Along these lines, Rue Mapp critiques the approach most environmental organizations have to reaching underserved groups: “Well meaning people say ‘I take the kids and we take them to this - insert wild place.’” The next line is always, “And they’ve never seen - insert wild thing.” And .”Oh. My goodness we’ve really done something.”... But what happens when that child goes back home? Or how is that connection that child makes related to what that child’s generational experience is, or community experience, or day-to-day life is?” (Mapp 2014).

It could therefore be argued that the assumptions made about African-American interest in the outdoors stem from mainstream perceptions, based on socio-economic and demographic studies, of what matters to them. Though community input is requested for the form of projects like the P2P Trail, they are not asked whether they want the project in the first place. At multiple events, I

overheard more than one resident mutter “why do they think we want this?” Such reactions risk destabilizing the perceived validity of nature-based events that claim to focus on justice and equity. If residents do not want these kinds of nature events and activities how then can programs say they are acting in the communities’ best interests?

Importantly, LAAS programs’ environmental justice and place-based approach actually take a step towards a more inclusive and varied understanding of nature experience, subscribing to the idea that nature right here is just as important, if not more so, as nature out-there. Indeed, as Waldie describes, “for many communities of color, nature of great significance isn’t out there in distant charismatic Sierra peaks; it’s in urban parks, in local mountains and along local rivers - and under their fingertips in the stuff they grow in their own backyards” (Waldie in Sahagun 2014). Yet, paradoxically, despite acknowledging differing experiential backgrounds, programs fail to integrate these differing backgrounds into their assumptions around students’ nature realities.

### **Case study: Black homeplace ecologies**

#### ***Place-making***

Before going further into place-based education, I want to describe the contributions of anthropology and similar discussions to defining place. As Deborah Massey so lucidly argued, “it is not just that the spatial is socially constructed; the social is spatially constructed too” (Massey 1984, 6). In focusing on place, Casey reminds us, “to live is to live locally, and to know is first of all to know the places one is in” (1996,18). That is, we experience the world locally, and imbue places with meaning starting from a point of being, perceiving, and acting in a

specific place. Scholars have consequently analyzed sense of place in a variety of ways, from identity formation (Tuan 1993, Low and Altman 1992), to a consideration of the politics of difference (Gupta and Ferguson 1997), to the cultural semiotics of landscapes (Feld and Basso 1996), to power and class politics (Soja 1989, Harvey 1996).

While many theorists (Gupta and Ferguson 1997, Tsing 2005, Ogden 2011) critique anthropological engagements of the local recommending a richer integration with the global, others point towards a “new localism” that embraces place-consciousness (Shuman 2013). Indeed, I argue for the specificity and power of attending to the local in all its diversity in the service of “conserving and creating patterns of connectedness and mutuality that are the foundations of community well-being” (Gruenewald and Smith 2008, xvi). Indeed, to avoid the abstractions and risks of stereotyping embedded in transformative culturally relevant pedagogy, “place-consciousness towards diversity and multiculturalism means reconnecting these themes with the rooted experience of people in their total environments, including the ecological” (Gruenewald and Smith 2008, xxi). This socio-spatial interplay is therefore fundamental to the development of a sense of place and a place-based education paradigm.

### ***Black Beverly Hills***

People use history “to situate themselves in the wideness of space, seeking a home, a place of belonging” (Glassie 1999, 35). As anthropologist Keith Basso once said “place-making is a way of constructing history itself” (1996, 6). The place-making processes of the African-American community in and around Kenneth Hahn are one domain wherein we can see this unfold. The narrative community members tell each other about the park and the surrounding neighborhoods

is predicated on transformation and hope in the face of unwanted change. Indeed, the middle class African-American community is experiencing what Low and Altman once called a “loss of place” (1992). The numbers of African-Americans in Los Angeles and neighboring cities are dwindling; for those who remain, the income and wealth gap between Blacks and whites is a significant factor in their inability to retain or create a foothold in private property investments.<sup>94</sup>

For the African-Americans who remain, holding on to those neighborhoods seen as traditionally African-American is critical. View Park-Windsor Hills is one such neighborhood, sitting in the heart of Baldwin Hills. It is affluent by any standards, with many homes over 2500 square feet, ocean views, and large lots. Nearly half of residents hold four-year college degrees, and nearly 20% hold master’s degrees and above. It is also the most African-American neighborhood in Los Angeles - over 85% of residents are African-American (LA Times mapping), and by most measures the wealthiest African-American neighborhood in the country. The median income here, is over twice that of African-American households city-wide, at \$81,000. The desire to hold on to Black homeplaces in the faces of systemic discrimination and racism, and more recently the arrival of the “colonizers” (incoming white residents) is powerful. Just recently I held a gathering for families with young children, inspired by the growing numbers of children in the neighborhood over the last 5 years. Out of 12 participants, only myself and my cousin were

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<sup>94</sup> In Los Angeles, the African-American population is down to 9% (from 17% in the 80s), and in Compton it has shifted from 73% in 1980 to 31% today. In a city where the gap between housing prices and income is widening, this impact is disproportionately felt by African-American residents who start from further behind economically. The median African-American household income is about \$35,000 per year, versus \$57,000 for whites. The wealth gap is even more shocking - median African-American household wealth is about \$7,000, compared to over \$100,000 for whites. Many African-Americans are moving back to the south - to more affordable places like Texas, North Carolina, Georgia, in what Manhattan Institute’s Daniel DiSalvo calls “The Great Remigration” (LATimes).

nonwhite. Afterward, we joked about the “colonizers” taking over. Similarly, I frequently attend open houses in the neighborhood, partly out of interior décor curiosity, and partly as a surreptitious anthropological move to study the changing demographic up close.

Anecdotal evidence shows about 80% of open house visitors are white; about half of the Black visitors are in fact curious residents like myself. My now-neighbor, a middle-aged Black woman, was one such person in early 2012. She was at the open house when we were looking for a home, and was visibly relieved to see a Black family interested in buying (my white husband (then-boyfriend) wasn't with us at the time). I remember her commenting on the Mexican family next door and her remarks at “all the people they have visiting with their cars taking up the street parking” (notes). Such racial anxieties are amplified when white residents arrive, and become even more tense in the pseudo-anonymity of websites like Nextdoor. Upon the recent opening of a sorely needed coffeeshop in the neighborhood, debate about the color of the clientele was heated. One wrote in a neighborhood facebook group that “I even saw a chick wearing a fedora. These are people that would never in a million years set foot in Simply Wholesome [a neighborhood vegan eatery frequented by residents, with a strong Africana flavor] more than once. This is not the View Park I love. The gentrification is strong with this one.” The commented has generated over 200 replies in one week. Another poster in an unrelated post remarked “so the LA Times has now renamed Baldwin Hills [to Park Hills Heights] to de-emphasize the Afrocentric composition as a way of attracting ‘gentrified’ white Home buyers? Is everyone ok with that?” This too sparked contentious debate, with nearly 150 comments.



Figures 38-39: Then & now: Children playing in View Park, 1925; Leimert Park Runners Club, 2017

Optimistically, comments to both posts (and many others like it) generally rejected the racist overtones in favor of supporting community change, as long as it is positive and beneficial to residents, regardless of race. Still, the very presence of such commentary is indicative of anxieties around change, gentrification, and racial constriction. As yet another resident commented “there are few places that reflects our upper crust. Someplace to aspire to. Full of Black folks doing great things and having great accomplishments. I want that to be maintained.” In constructing this narrative by reinforcing associational history, the history of white (and Japanese, and Jewish) residents prior to the arrival of the African-American middle class in the early 1960s is written out. The stories of settlement and cattle grazing in the Rancho era, or the fact that the main road next to the park, La Cienega, is colonial Spanish for marshland, because of the numerous springs that dotted the base of these hills are also untold. At the 50th anniversary commemoration event of the Baldwin Hills Dam collapse, no mention is made of the indigenous peoples who populated this landscape.



### ***Community-building***

The revitalization of the commercial corridors and transit options within and around this neighborhood has suddenly been jump-started: key projects include the Crenshaw Boulevard metro line, a new Kaiser Permanente medical office, Baldwin Hills Crenshaw Plaza redevelopment (once called ‘the ghetto mall’ by many residents up on the hill), and revitalizing the store fronts and streetscape of Slauson Corridor. The Slauson Corridor Revitalization Project has been spearheaded by LA County Supervisor Mark Ridley-Thomas, the same office behind the Stocker Trailhead, Eastern Ridgeline Trail at Kenneth Hahn SRA, and fruit tree planting at a community walking track. At a 2015 community meeting updating residents on the progress, the Supervisor remarked “No one can stop me from waging war on blight... the commercial corridors of this community have not reflected residents’ expectations for far too long.”

Improvements include face-lifts to the storefronts, increased sidewalk lighting, and adding bike paths and sidewalks along major roads. The new Stoneview Nature Center which opened in 2016 is also part of this “revitalization,” and a key node in the long-proposed Park to Playa Trail. LA Metro is building a Crenshaw Metro Station, and the Slauson Corridor Revitalization links up to Thanks to a federal grant awarded in 2015 by the US DOT TIGER program, LA County MTA’s Rail to Rail project to transform 6.4 miles of minimally use rail right of way into a bike and pedestrian path. While many homeowners applaud these projects and their benefits to property values, many others are concerned, arguing that it smacks of gentrification and the “take over” of one of the few remaining affluent African-American neighborhoods in the country.

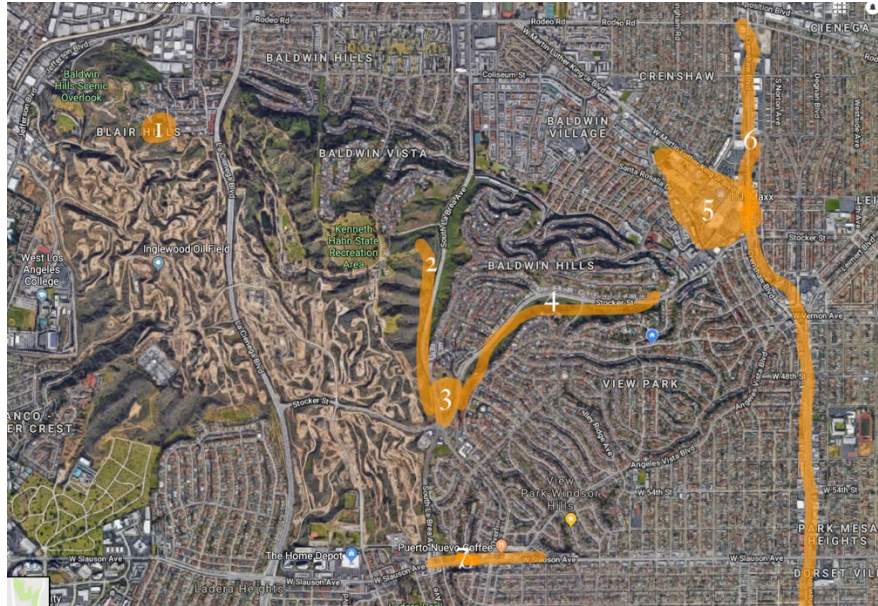


Figure 40: Revitalization projects in and around Baldwin Hills

*1: Stoneview Nature Center; 2: Kenneth Hahn SRA Eastern Ridgeline Trail; 3: Stocker Trailhead and public fruit orchard; 4: Stocker Trail; 5: Baldwin Hills Crenshaw Plaza redevelopment + Kaiser Permanente Medical Offices; 6: Crenshaw Metro line running through historic Black neighborhood Leimert Park; 7: Slauson Corridor Revitalization Project*

The transformation of the neighborhood is reflected and amplified in the community-building events in and around the Baldwin Hills nature spaces. I have witnessed this neighborhood grow and change over the last 30 years. As a childhood, there were few nature-based community events. Instead, the focus was on culture and tradition: church trips and activities, Urban League fundraisers, and annual festivals like the African Marketplace in Leimert Park. Today though, politicians and community leaders are leveraging the urban greening movement to hold events in and about neighborhood parks, in order to increase community bonds and contribute to an increasingly environmentally-focused sense of place. In addition to these infrastructure development events, there were other community activities like the Martin Luther King Day of Service entitled “What are you Doing for Others?” sponsored by a number of government departments such as Los Angeles County Parks & Recreation and the LA County Supervisor’s

Office for the 2<sup>nd</sup> District, as well as local environmental non-profit organizations like Mujeres de la Tierra (“Women of the Earth”) and the LA Audubon Society. Such events link powerful figures and moments of African-American history with volunteer nature restoration efforts, working to rewrite the story of being ‘outdoorsy’ and nature involvement in frameworks and terms relevant to the community.

This aspect of community building is a burgeoning one, and is stronger among those actively involved with the natural landscape through learning or volunteer work. However, even for those less directly invested in urban nature, these efforts work to cultivate sense of place among park users and potentially, an urban community that is more viscerally aware of the natural landscape. It is for these reasons that the parks along the Park-to-Playa Trail, and many other parks in the LA Area, under the strong collaboration between the district Supervisor Ridley-Thomas and the LA County Parks administration increasingly entreat visitors to look around them, smell the plants, be aware of what’s underfoot. Indeed, the LA County Department of Parks & Recreation strategic plan is driven by the vision of “creating communities through people, parks and programs” (2018). The first two strategic goals, enhancing communication and building partnerships, are marked first and foremost by a desire to engage culturally with the community. They hope to “increase our cultural awareness to enhance our program offerings” and “integrat[e] grassroots cultural arts programs into existing activities and partner with multicultural vendors” (2018). Integrating nature and community through environmental awareness and engagement is slowly becoming a trait that is valued for and by city-dwellers, and recreational and open green spaces are key sites in which to cultivate it. As Superintendent of Stoneview commented at a fruit tree master class I attended, “connecting people is really

important... Bringing people in in as many ways as you can, and greening is also important.”

The effort correlates with LMU’s Baldwin Hills Park User Study showing that 70% of park users who responded to the survey reported they would like to better understand the region’s environment, with majority interested in learning more about wildlife and human health/environment (Romolini et a. 2017).

### ***Cultivating a Black middle-class greenspace***

#### *Local & community-based*

In winter 2013 as I began my fieldwork, I noticed a shift begin to occur in the ways in which this community was called upon to connect to nature and create a sense of emplaced belonging. I attended a commemoration event for the 50<sup>th</sup> anniversary of the December 14, 1963 collapse of the reservoir’s dam at what is now Kenneth Hahn State Recreation Area at the heart of the 127 square mile Ballona Creek Watershed (Byrne et al. 2007). The 19-acre reservoir provided drinking water for West Los Angeles residents from 1951 until its failure in 1963. On the 40<sup>th</sup> anniversary of the rupture, LA Times staff writer wrote that “the Baldwin Hills Dam collapsed with the fury of a thousand cloudbursts, sending a 50-foot wall of water down Cloverdale Avenue and slamming into homes and cars... Five people were killed” (Pool 2003). The rupture sent nearly 200 million gallons of water down into the neighborhoods. The event was also notable for the live aerial telecast filmed by KTLA-TV Channel 5 helicopter of the collapse that set the precedent for airborne news. The reservoir and its dam were never rebuilt.

Once called “Pill Hill” when first developed in the 1940s, in reference to the large numbers of doctors who lived there, the 1960s saw it transform into the “Black Beverly Hills”. Explicitly

racist restrictive covenants, despite being declared illegal by the Supreme Court in 1948, persisted. 1950s-era deeds stipulated that “no part of any said realty shall ever be sold, conveyed, leased, or rented to any person not of the white or Caucasian race” (Baldwin Hills Company 1951). The early 1960s was actually the beginnings of a middle/ upper-middle class Black enclave amidst a dwindling demographic in Los Angeles. This was the era of “white flight”, wherein anxieties around the growing minority population led white homeowners to sell and move to quieter, whiter, suburbs in the San Fernando Valley to the north. Large numbers of affluent Black musicians and actors who were still unable to access the affluent westside neighborhoods bought homes in the Baldwin Hills. These large homes with views were under market value because of the surrounding Black population, so the likes of Ray Charles, Nancy Wilson, and former LA mayor Tom Bradley settled in these hills.

Despite being one of the most affluent Black communities in the US today, it is also in south Los Angeles, considered an undesirable, gang-ridden neighborhood. Today, the demographic is 71.3% Black in Ladera Heights and 67% Black in Baldwin Hills and adjacent 90008 zip codes; Black in all of Los Angeles County only number 8.2%.<sup>95</sup> Indeed, the homes on the hill are solidly middle-class, while at the foot of the hill lie low-income densely occupied apartments. Importantly though as Hunt (2010, 8) described,

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<sup>95</sup> This, despite the fact that blacks only make up 8% of the Los Angeles population, as compared to about 47% latinx and 28% white. Blacks are fleeing Los Angeles and other major cities in droves, searching for less crime and better lifestyles. While Detroit and Chicago top this list with the loss of nearly 200,000 Black residents each in the last 10 years, Los Angeles is number five with a 54,000 person drop in black residents over the same time period (Census 2000-2010). Major reasons for this exodus is tied to the unaffordable cost of homeownership, as well as the shifting demographic of historically Black communities (Pfeiffer 2013).

“despite the distinctive hillside homes, despite the unparalleled views of the city, and despite the almost mythic allure Baldwin Hills had achieved over the years in the black imagination, the fact remains that residents of Baldwin Hills routinely found it necessary to leave this hallowed black space and head farther west in order to obtain the type of services—quality schooling for their children, well-stocked and adequately staffed stores, trendy restaurants—commensurate with the dream. Arguably, the dream represented by Baldwin Hills was a mixed blessing that had much to say about the experience of being black in Los Angeles and in America”



Figure 41: What was once a reservoir is now a sunken grassy plain with oak trees



Figures 42-43: The Baldwin Hills Reservoir and floodwaters after the dam collapse in 1963

While the programs seek to give access to minority youth who might not otherwise have it – a frequent refrain among docents is that the kids from east LA have never been to the beach – they often fail to question and account for the underlying structures of power and embedded epistemologies that underlie urban socio-natures. Recent research shows this is indeed a reality, due to economic but also racial disparities. For Latinx, the majority of whom live in East LA, or even further into the Central Valley, the affordability of making the trip to the ocean is a key issue. For African-Americans, 30% visit the coast once a year; indeed “there’s a danger that we see the coast as a ‘white California’ thing... there’s a cultural phenomenon there and it has its roots in segregation and discrimination” (Christensen and King 2017). This is a space wherein a critical pedagogy of place merged with what Cobern (2000) calls epistemological pluralism can offer some guidance. That is, organizations should emphasize a local, community-oriented nature engagement around nurturing rather than repairing nature; as BHC Director explains, by “creating an investment people appreciate in their own neighborhoods that they take ownership in and interest in.” Addressing the cultural component of such an effort, in analyzing

environmental justice in Canada, Jafri came to a similar conclusion. She remarked that “conventional approaches to promoting environmental stewardship did not seem to work with immigrants of colour,” because, as an environmental organization staff person remarked “the environment is perceived in a different sense” (Jafri 2010, 226). In this case, revisions to their project centered on explicitly centering their activities on “concerns of livelihood and empowerment, and, moreover, linked together the generally separate spheres of environment, society, and economy” (Jafri 2010, 227). Such examples focus on environmental action as a conduit for environmental values, here by centering on empowerment and environmental issues that have a direct impact on daily life.

Two critical examples are the community-based efforts to preserve the Ballona Wetlands, and the current Draft EIR proposed by the Army Corps of Engineers for the restoration of the wetlands. The story of how Ballona was saved by the community is a compelling one. That project is a prime example of what Mazmanian and Kraft (2009) call the second epoch of American environmentalism, wherein “communities were compelled to greatly increase their reliance on public-private partnerships for conservation. This was a time when the federal government drastically decreased its support for land acquisition” (Press and Nakagawa 2009, 151). It should also be noted that the community in question was predominantly white and middle-upper-middle class; that is, a community with the time, money, and political connections to be able to block developers from transforming the wetlands into more urban sprawl. As current land manager Brody remarked, it was thanks to the “neighborhood watchdogs” that development was halted. These nascent environmentalists fought tooth and nail for the wetlands, and continue to participate in volunteer restoration and preservation efforts.



The political component of environmental stewardship also cannot be ignored. In the world of stewardship, individuals are expected not only to act and think as environmental care-takers, and donate to contribute to the organization's mission, but also to ultimately fulfill duties of citizenship and vote accordingly. To use Wolch's memorable phrasing, "ecological citizenship must go beyond its historic adherents (the hikey-bikeys and tree hugging set) and move into the mainstream" (Wolch 2007). However, the problem here is two-fold: first, that Los Angeles, despite its eco-friendly persona, is marked by low levels of voter participation, informal socialization, and organizational activism, all key to supporting movements like environmental stewardship (LA2050, 37). Second, it is important to consider how those individuals and communities subject to discrimination and social/environmental inequities may be understandably less interested in connecting to the site of their oppression, not to mention the politically supporting environmental stewardship when their basic needs are not met.

Sometimes, re-centering local knowledge and experience is not enough, or worse, can risk further entrenching existing injustices by making subjugated communities seem inextricably tied to their place of suffering. How then can educators simultaneously anchor environmental knowledge and experience in the local, while also transcending its limitations? One possibility may be to allow for the local to include more than the current place in which they live; perhaps, the local can also refer to the specificities of a local homeplace, somewhere they grew up, or where their extended family still lives, or even where they'd like to connect to. For some like Latinx student docent Julia, the point of connection may be in family practices and generational stories:

"when I am learning stuff about the environment I tell my mom about it and she gives me all these insights about it too like what she knows. It's not just the

plants, it's also about what they can do for us. In her side of the family... they called them witches but they were doctors. They would use the herbs and plants out there and use their properties to help the other people”

For others like Oscar who grew up in south LA, his understanding of local habitats and how they function as interconnected systems enabled him to appreciate the state of California and the country. In this way, an emphasis on and connection to the local can transcend the local space in which one finds themselves. As one volunteer docent from Santa Monica College who described the Kenneth Hahn State Recreation Area as “the wilderness we created” remarked, “I’m connected to place, yeah, but that’s true for the whole Earth.”

### *An ethnographic interlude: Opening the Stocker Trailhead*

One event, drawing dozens of residents and symbolic of a larger process of urban neighborhood development was the opening of the newly created Stocker Trailhead was held on Friday morning, March 4 2016 in the new parking lot/ public orchard/ trailhead space under an overcast sky. Pastries and fruit from local eateries were provided, and approximately 2 dozen chairs set up under an awning; this was woefully insufficient as the crowd overflowed to standing room only in the parking lot. There were about 150 people in attendance, many I could tell were residents, some of whom I recognized. They were mostly early retirement age African-American men and women in workout gear; clearly many had walked from their homes down the track connector to the event. Representatives from State Parks, the Santa Monica Mountains Recreation and Conservation Authority (MRCA), the Baldwin Hills Conservancy (BHC), and the Los Angeles Audubon Society were in attendance. Students from the elementary magnet school adjacent to

the walking track and new Trailhead/lot opened the event with a silent procession from the school and the pledge of allegiance, carrying signs for the event.

The community's history, involvement, and spirit are central to the discourses presented by many of the speakers that day. David McNeill, Executive Director of the BHC (and a community member) spoke next, describing the "evolution of *our* neighborhood," followed by Former Senator Murray noting that he "saw at least 10 people who I went to elementary school with at this school, we have all stayed in this community. I have spent my entire life literally blocks away from this area. The idea that we are continuing to improve the area and staying with it is absolutely fabulous." District Supervisor Ridley Thomas spoke next, thanking the community as they are "what inspired State Parks to put their flag in the middle of Los Angeles, in the middle of the Baldwin Hills" (field notes). In a public acknowledgement of community, attendees were asked by Ridley Thomas to high-five their neighbors to show how happy they were to be there. Supervisor Ridley Thomas, intoning in a style reminiscent of African-American preachers, continued to emphasize the community, reminding everyone that "this is the largest urban trail in LA County and beyond and it starts right here in the Second District and you ought to be proud... [it offers a] new view and new appreciation for what's here in our own community". The framing of the neighborhood as the starting point for this history-making urban trail is intentional. It is intended to garner support from residents, and also to frame this process as a liberatory action on the part of African-American residents to lay claim to their "homeplace." Throughout, the emphasis was on "creat[ing] more places for gathering, for sharing positive experiences."



Figures 44-45: Stocker Trailhead Opening Ceremony

Many residents who lived in the neighborhood at the time were present at the commemoration event, which took place at the top of the park area, in “the bowl” (officially called Janice’s Green Valley, named after late supervisor Hahn’s daughter) (figure 41). A number of local non-profit as well as government environment-related organizations had set up booths, including NorthEast Trees, LADWP, the LA Audubon Society, Sierra Club, the Ballona Creek Renaissance, the

Baldwin Hills Conservancy, Mujeres de la Tierra, local Boy Scouts Troops, and representatives from the County and State Departments of Parks & Recreation. Residents and stakeholders were gathered to hear speeches from famous residents and local politicians, to commemorate and celebrate how a “site of devastation [was turned] into an oasis of hope” through the creation of the Kenneth Hahn State Recreation Area.

In the last several years, the ‘white invasion’ and ‘gentrification’ as the community transforms yet again has amplified underlying concerns and the need to lay claim to a place (Pfeiffer 2013). After suffering from redlining and discriminatory covenants, upper middle class African-American homeowners (and their African-American civic representatives) are desperately trying to hold on to a place to call their own. Part of this laying claim to space is takes the form of urban greening by increasingly considering its natural spaces as assets and symbols of equity. At one event, Supervisor Ridley-Thomas remarked that “we continue to make improvements to make the park more attractive and accessible to its users.... We will celebrate our assets.” Connecting the community “we” to park spaces through a language around assets primarily benefit the local homeowner community. These park assets were repeatedly celebrated as the Park to Playa Trail slowly developed in this predominantly African-American community. Over the course of my research, three key sites were developed or improved as park of the Trail project. These included the Stocker Trailhead, the Eastern Ridgeline Trail at Kenneth Hahn, and the new Stoneview Nature Center. In the case of the Stocker Trail and Kenneth Hahn park discussed in the preceding section, cultivating an emplaced community and sense of belonging is accomplished in part by reaffirming a specifically African-American history of the surrounding area community, and emphasizing nature as an asset.

The Park's namesake, LA County Supervisor Kenneth Hahn, proposed it be made a park in 1968, that vision coming to fruition fifteen years later in 1983 with the opening of the nearly 400-acre Kenneth Hahn State Recreation Area. Actress and BHC Board member Starlett Quarles remarked, "The immediacy of what took place on this spot a half a century ago set a process in motion that brought this city, this community exactly where we are today." Linking the dam collapse to community and to place, Ms. Quarles drew attention to the ways in which significant events tie people to places. In a study on walking groups in the English countryside, Darby (2000) showed how ethnic minorities tended not to participate, because they are perceived by walkers as "people who are 'urban' and as 'those' who have no associational history with the countryside" (Darby in Lovelock et al. 2011). This "associational history" is critical to cultivating feelings of belonging and consequently community around a given place.

It is important to recognize that in telling the 'community's' story, it is apparent to most that 'African-American' is the unsaid qualifier. As one commentator remarked in reference to the return of whites to neighborhoods like Inglewood, Leimert Park, and Baldwin Hills, community "is our capital and always has been. In lieu of economic wealth [due to institutionalized discrimination and centuries-long repercussions of slavery and then Jim Crow], we lay down roots, we build social cohesion out of the vacuum created by white flight, avoidance and indifference. Our neighborhoods are our strength, our visibility" (Kaplan 2017). Long-standing African-American residents want to make sure people remember that this was and still is a predominantly African-American community. Latching on to that African-American history is a way to "his, complete, inhabitable, worth defending... history is the essence of the idea of place"

(Glassie 1982, 664). Emphasizing the African-American history and neglecting others enables a narrative that makes the Baldwin Hills an African-American neighborhood, and one worth improving and fighting for. At this event and others at local nature spaces, speakers and guests are predominantly African-American, the music is usually jazz or R&B, crafts are focused on Africana.

Once people reach the park, physical health is highlighted, again in terms relevant to health disparities located in the urban African-American experience. The “Walk for Health Trail” sign depicts African-American and Latinx families and reminds users that “heart disease, stroke, diabetes and obesity are on the rise nationwide, and studies show that African Americans and Latinos are at a significantly higher risk.” The sign also reads: “what better place to take these beneficial strides than in the Baldwin Hills - home to spectacular views and hundreds of species of plants and animals that make this area their home. Each time you walk the trail, your connection with nature grows - and the health benefits can last a lifetime.” Here, the residents’ home is tied in to the park as a home for wildlife, and a place where you can be healthy and connect to your natural surroundings.

Using Waldie’s term, a sense of place is how “I write myself into the story of my place, inhabit it as my home, and negotiate a way from the purely personal there to the public” (2014, 98).<sup>96</sup> We therefore see two narratives at work here that link physical health and sense of place to this

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<sup>96</sup> Waldie expands to argue that all we need is a “greater intimacy... to begin to restore us to it” (Waldie 2014, 99)

natural landscape. It is equally important to note that the sign co-sponsored by the LA County Parks & Recreation, but also by social justice organizations. At the Stocker Trailhead opening, which links to Kenneth Hahn and ultimately the rest of the Park-to-Playa trail, community health as a result of this trail through active recreation was also highlighted: the audience was entreated by Parks & Recreation and County officials to “put your pedometer on” (Supervisor) and “let’s get out there and get active and walk the trail today.”

### **Conclusion**

Stewardship has been analyzed in a number of ways, including global/local scale (Chapin et al. 2010), relationship to power (Silveira 2000), and potential for radical change (Barry and Smith 2008). A persistent thread through it all remains emphasis on action and behavior, in addition to underlying values (Romolini et al. 2010). What often goes unaddressed however, is the profound ways in which such values are influenced by white privilege.

Expanding out of stewardship, in this chapter I have considered how race and power play a critical role in our understanding of who does nature, how, and where. Though Eurocentric (generally perceived as white) values have been presented as *the* way of knowing, significant evidence shows that this is not the case. Further, histories of oppression, discrimination, and lack of representation only serve to anchor these values as the norm. It is only by drawing attention to the existing practices and values of non-dominant groups, and the ways in which these have been subjugated by hegemonic narratives, that educators offer a truly socially just environmental education.



## CHAPTER V: RHIZOMIC ENVIRONMENTAL PEDAGOGY

### Introduction

It took some time to identify the most appropriate metaphor for the kind of environmental education I envisioned. Then I came across Peter Wohlleben's 2016 *The Hidden Life of Trees*, which describes the ways in which trees communicate and support one another as a community. They do so both through the visceral senses of smell and taste, and through electrical impulses they send one another through their root system. An acacia being eaten releases a chemical to alert other trees of the impending danger; a leaf can taste the saliva of the insect eating it and will release a chemical to attract that insect's predator. Perhaps most impressively, trees share food and communicate in a mycorrhizal network (figure 46) that has been dubbed the "wooded web" (Gross 2016, Toomey 2016).

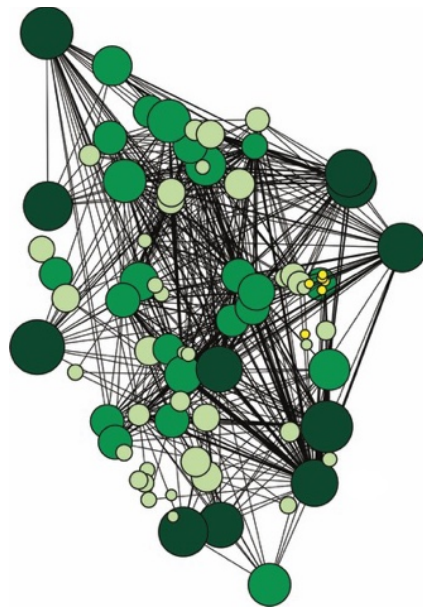


Figure 46: Diagram of fungal network, with highly connected 'mother trees'

What enables this network is the poorly understood rhizosphere<sup>97</sup>, a “highly complex and insufficiently understood system...[that] enables communication both among plants and between plants and other species” (Gross 2016). Some anthropologists have used rhizomes and related assemblages as frameworks for a deeper, multispecies understanding of nature-culture relations and the messy processes of knowledge production (Ogden 2011; Duvall 2011; Tsing 2005, Choy et al. 2009)<sup>98</sup>. Like these other anthropologists, I draw on the rhizome for its potential in offering a multidimensional yet situated framework as a starting point for a transformative environmental education. Further, the communicatory aspect of this network boosts relationality; as ecologist Suzanne Simard remarked, “if we can relate to it, then we’re going to care about it more. If we care about it more, then we’re going to do a better job of stewarding our landscapes” (Simard in Toomey 2016). In referring to Deleuze & Guattari’s *A Thousand Plateaus*, the anthropological collaborative Matsutake Research Group remarks that the rhizome’s ontology of multiplicity works to refuse the unifying metaphors of trees, webs, and other arborescent entities. Instead, “the rhizome offers a way to talk about fields and lines of connecting, relating, interpenetrating, becoming, and transforming” (2009, 384).

The rhizome is a useful tool or “way of theorizing landscapes as complex and changing assemblages of relations that dissolve and displace the boundaries of nature and culture” (Ogden 2011, 29). Unlike the “tree-root” metaphor so common to pedagogy, scholars like Donna

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<sup>97</sup> Coined by scientist Lorenz Hiltner in 1904. Even after a century, scientists are still only scratching the surface in their understanding of this complex plant-soil community.

<sup>98</sup> Inspired by Deleuze and Guattari’s (1987) rhizome theory – arguing for an analytics centered on connectivity and heterogeneity with multiple nodes of branching and connection.

Haraway (2008), Bruno Latour (1993, 2004), and Gilles Deleuze and Félix Guattari (1987) favor the relationality of rhizomic assemblages. Inherently interconnected and changing, this metaphor is focused more on the “*process* of becoming,” a “complex and dynamic process whereupon the collective’s properties exceed their constitutive elements” (Ogden et al. 2013, 7). Importantly, their work draws the global into relation with the local, and takes a distinctly multispecies turn (Kirksey & Helmreich 2010).

When applied to environmental education, this multi-dimensional yet locally situated framework enables a deeper and richer understanding of the varied and shifting actors and stories that connect the people of Los Angeles to the landscape. The rhizome allows for a plurality of nature knowledges and experiences from diverse communities within the context of a specific landscape. While biologically rhizomes function to support species’ survival (sometimes to the detriment of other species), when applied to cultural practice the shifting assemblages encapsulated in the rhizome can offer a unique perspective. Designing urban environmental education in America through a rhizomic framework enables the integration of critical pedagogies of place and epistemological pluralism, anchored within the layered histories of the United States as a settler colonial, immigrant, slave state.

By focusing on these aspects of national formation, I attend to how each layer contributes to building contemporary American identity, particularly regarding how the American people relate to the environment. Thus, the invisibility of contemporary indigenous people can be traced to settler colonial origins. Environmental fears embedded in the collective memory of African-Americans can be traced to slavery. Undocumented immigrants create home places through

community gardens. The nation's diversity of experience and epistemology is significant and should play a more significant role in the development of culturally-situated and politically aware environmental education. Before I show how the rhizome can be applied to create an urban environmental education for Los Angeles, I first want to trace the lineage of the schools of thought that support this framework.

### **Lineage of culture/place pedagogies**

#### ***Culturally responsive pedagogy***

Research shows we do not live in a post-racial era as commonly believed (see Coleman et al. 2012; Howard 2016). Accordingly, critical race theorists (CRT) have long sought to unveil hidden racism (Ladson-Billings & Tate 1995, Crenshaw 1989, Delgado and Stancic 1997, Solórzano 1998). Applied to education, CRT aspires to “identify, analyze, and transform those structural and cultural aspects of education that maintain subordinate and dominant racial positions in and out of the classroom” (Smith-Maddox & Solórzano 2002, 68). Growing out of CRT, Ladson-Billings (1995) defined culturally relevant pedagogy, proposing three key dimensions: high academic expectations, leveraging cultural competence and pre-existing knowledge, and elevating students' awareness of power relations. Related culturally responsive pedagogy was defined as teaching “to and through [students'] personal and cultural strengths, their intellectual capabilities, and their prior accomplishments” (Gay 2010, 26). In particular, it emphasized the importance of building relationships with each group of students, rather than basing teaching styles and content on broad essentializing stereotypes (see also Gutiérrez

2002).<sup>99</sup> That is, the goal is to acknowledge and valorize students' culture, past experience, and alternative ways of knowing. In doing so, such practices seek to positively transform the school experience and outcomes for marginalized students.

Though culturally responsive pedagogy as a transformative educational model expanded in the late twentieth century, Sleeter (2012) argues that by the early 2000s it was quickly marginalized. The late 20<sup>th</sup> and early 21<sup>st</sup> centuries are marked by a neoliberal and context-blind emphasis on uniformity and consequent pressure to teach to the test. Like forcing playdough into a mold and cutting off the excess, my informants have been led to shape their content into a format that would appeal to school teachers and trim off the fat, constraining the possibilities of cultural inclusivity. Sleeter (2012) demonstrates the ways in which CRP efforts have not reached their full potential, in particular due to the common pitfalls of cultural celebration, trivialization, essentialization, and a-political social analysis<sup>100</sup>. Too often CRP takes the form of teaching *about* culture, rather than integrating varied cultural pedagogies and instructional processes into 'academic' content and becoming students of their students (Howard 2001; Nykiel-Herbert 2010).<sup>101</sup>

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<sup>99</sup> While in this framework, teachers' "political clarity" is more important than representation, I would assert that having a similar racial, economic, and gender identity increases the chances of a teacher's political sensitivity to the lived experience of subordinate groups, and of students' likelihood to see themselves represented. As my cousin remarked about being pre-med as a young Black person, she is more likely to be interested in a career in science if her teacher is a Black man or woman.

<sup>100</sup> For example, in CRP initiative for Maori students in New Zealand, while teachers' academic expectations of students improved, culture was integrated in rather superficial ways (Meyer et al. 2010).

<sup>101</sup> When applied to the college setting, students most appreciated faculty who were inclusive of cultural difference, constructed welcoming environments, and encouraged students to think critically (Quaye and Harper 2007). Still the majority of studies focus on K-12 teachers and classroom, and on core subjects like English (Lee 1995), social studies (Cammarota & Romero 2009), and math (Lenoard, Napp, and Adekele 2009).

### *Place-based education*

As applied to environmental education, CRP is insufficient to address questions of local landscapes and places so fundamental to environmental knowledge and experience. Though critical pedagogy seeks to acknowledge that “people as beings ‘in a situation’ find themselves rooted in temporal-spatial conditions which mark them and which they also mark,” it too often falls short (Freire 1970, 90). While the best CRP educators allow students more freedom of expression and influence into their own community-based and culturally-informed explorations and creation of knowledge, often the environment or nature as a category of existence is not integrated in this approach. It is almost as if in an effort to incorporate cultural relevance and student individuality, CRP forgets that both exist as part of a larger social, political, economic, *and environmental* context. In exploring the reference materials for CRP, few referred to the environment as a key factor in increasing relevance.<sup>102</sup> Possible alternatives include Orr’s call for educating students in “the art of living well where they are” (2004, 92), and Sobel’s (1996) desire to “reclaim the heart” in place-based education.

Place-based education, importantly, tends to focus on connecting what is happening in the classroom with the surrounding community, recentering the place students live in as the site of learning (Sobel 2004). As the “antidote to the not-thinking about the Earth common in many schools,” this approach readily lends itself to environmental education (Sobel 2004, 3).

Accordingly, much of the place-based education literature in fact focuses on the environment (Orr 1992, 1995), the outdoors (Woodhouse and Knapp 2000), or rural settings (Haas &

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102 Schoology 2017; Wlodkowski and Ginsberg 1995

Nachtigal 1998; Theobald 1997), with a rural/ ecological emphasis. When it does integrate social change, the focus is on ecological literacy for all citizens. While ecological literacy is important for climate resilience, its advocacy without consideration of the source of environmental thought, action, and values embedded in ecological narratives risks transmitting dominant epistemologies to all groups without fully accounting for cultural difference or social inequality. The answer is not to de-politicize environmental learning, but on the contrary to retain attention to the political and social inequities in community lives in order to situate the environmental questions in the lived context of the students' community.

Certainly, these “ecologies of belonging” (Gilroy 2000) are where “rooted identities contest with routed ones as histories of migration, diaspora, and displacement transform stable senses of community and places of belonging” (Moore et al. 2003, 34). Despite this nexus of diversity, urban nature is profoundly impacted by hegemonic design imperatives, as well as the resilient uses of these and other spaces by community members. In the specific context of urban minorities and the learning and use of nature spaces, race and nature continue to be co-constructed within a “terrain of power” (Moore et al. 2003). It is in such spaces that environmental education as currently practiced becomes problematic, because it tends to reproduce legacies of enlightenment and undermine nuanced representation. It is therefore critical to integrate an “understanding of how race and nature interpellate their subjects and how they come to recognize themselves within its material and discursive formations” (39; see also Rosaldo 1989 on positioned subjects; situated knowledge Haraway 1988).

### *Critical pedagogy of place*

This leads us to the powerful potential of David Gruenewald's (2003) proposal for a critical pedagogy of place that incorporates critical pedagogy with place-based education.<sup>103</sup> Haymes (1995) for example, offered a distinctly urban version of this approach with his pedagogy for "black urban struggle." Though it did not directly address the ways in which this might play out in the context of urban nature, it is a powerful contribution to analyses of the intersectionality of power, domination, and material sites of the urban setting, and how to resist these processes. Bowers' (2001) eco-justice model provides another effort at integrating ecology and social justice in education.<sup>104</sup> His approach emphasizes domination narratives embedded in ecology as well as culture, attends to environmental racism, integrates non-commodity traditions, and advocates lifestyle adaptation for sustainability. It seeks to integrate social justice and ecological justice concerns into a radical educational paradigm. Yet, a focus on resistance and "struggles with human oppression," while critically important, does not leave much room for creation and flourishing. Gruenewald goes on to suggest a move away from dystopian narratives towards the idea that "people need to develop mutually enhancing relationships with nature" (Gruenewald 2003, 316). These relationships should start from within the community, integrating the local setting and collective memory, and accounting for systemic institutional inequities that may limit or constrain that experiential connection. Starting from within does not mean environmental

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<sup>103</sup> Culturally responsive pedagogy emerged from Freire and later Giroux critical pedagogy. I focus on CRP as its defining features are especially relevant for the kind of EE I would like to see evolve.

<sup>104</sup> Bowers has also extensively critiqued critical pedagogy of place for its underlying idea that change is progressive and places too much faith in cultural awareness and critical thinking as a way to overturn the hegemony. These critiques are countered by advocating a community-based approach that maintains the inherent value of other knowledges as on par with science, rather than as proto-science.



education has to stay within the community, limited in scope to the often degraded local environment. Still, the dialectic of local community integration and external representation is critical to enabling students who do not see themselves in these fields or spaces to take the first step.

For example, in my study of urban environmental education programs, the majority of educators were white, middle class women who grew up playing outdoors in homes with yards or in suburban semi-rural landscapes. They were raised with white Eurocentric models of environmentalism that echo settler colonial narratives of wilderness and indigenous people - certainly, playing cowboys and Indians was a frequent occurrence (fieldnotes). Their students however, tend to grow up with a wildly different experience, one where the nature they are familiar with is the local park or what can be seen walking down the sidewalk near their apartments. The disparity between educators and students recreates power inequalities that devalue the alternative experiences, knowledges, and relationships of traditionally subjugated groups.

Gruenewald (2003) therefore advocates a critical pedagogy of place that “ultimately encourages teachers and students to reinhabit their places, that is, to pursue the kind of social action that improves the social and ecological life of places, near and far, now and in the future” (7).

Drawing on bell hooks (1990), Gruenewald adds that his critical pedagogy of place is focused on “reinhabitation” or living well in the environment, as well as “decolonization” as a “process of cultural and historical liberation.” Specifically, he argues that “if reinhabitation involves learning to live well socially and ecologically in places that have been disrupted and injured,

decolonization involves learning to recognize disruption and injury and to address their causes” (Gruenewald 2003, 319). A critical pedagogy of place therefore brings “cultural and ecological politics into the center of place-based discourse,” (Gruenewald 2003, 321) doing the important work of integrating power, politics, culture, and knowledge into a revitalized environmental education framework.

While culturally responsive, place-based, and critical pedagogies all offer important contributions to environmental education, some key elements remain absent. Notably, a conceptualization of the United States as a settler colonial society, and its continuing impact on race and nature, is largely missing. A recent 2014 issue in the journal of Environmental Education Research, and subsequent 2016 edited volume entitled *Land Education: Rethinking Pedagogies of Place from Indigenous, Postcolonial, and Decolonizing Perspectives* is a significant step forward. Of particular interest in this volume is Paperson’s discussion of the ways that storied land can provide “an important connecting node between Indigenous struggle and black resistance” (126). Indeed, promoting a decolonizing agenda is critical within and beyond indigenous communities; to create an inclusive and place-based education paradigm, “we need to understand how sustainability and community cannot be achieved if the communities Indigenous to place are not central in this formulation. Moreover, the concept of territoriality must be a central component” (Tuck, McKenzie and McCoy 2016, 26).

Applied to environmental education, the continuing repercussions of settler colonial agendas impact goes beyond how we speak about indigenous peoples, to also affect our very ideas around nature and wilderness, and the kinds of relationships people are expected to have to these spaces.

Working from within, rather than for, communities in terms of environmental education content and ideologies is also undervalued. While culturally responsive pedagogy is an important step in recognizing and valorizing non-dominant voices, too often it is based on assumptions and essentializations of cultural and community knowledges and practices. Certainly, a community can essentialize itself, coming to believe and reproduce representations of who they are and what they can do. “Black folk don’t swim.”

While writing this manuscript, I had an informal conversation with a Latinx school Spanish teacher about my research. He then recounted an anecdote that demonstrated this very problem:

“I told my students, yeah I wrote a book, and we were gonna read that book. They all looked at me like ‘naw, you didn’t write no book brah’. I said really I wrote a book of poetry and we’re going to read it for our literature class... A few minutes later I said, check this out, I’m gonna step out, and come in as your substitute English teacher. So I step out, and come in and say “Hello, I’m Mr. Wilson, and I’ll be teaching you today. I lived three years in Spain and wrote a book of poetry that we will be reading in our class this term.” How do you react? [acts out quiet nods and total acceptance]. See what I mean? When I’m Mr. Lopez, y’all think I’m lying, but when I come in as Mr. Wilson, with white skin and speak correct English, you don’t question me. See how we tear each other down? Without even realizing it.” (notes, paraphrased)

With this anecdote, the teacher sought to demonstrate how his Latinx and African-American students held deeply seated expectations of who and what they could become, and that it was different and less than what their white counterparts could achieve. While authenticity and essentialization are often problematic when educating from within as well as from without, the very act of recognizing this reality can enable a richer understanding of communities. This is where a rhizomic framework to environmental education may provide added insight.

## **Rhizomic environmental education**

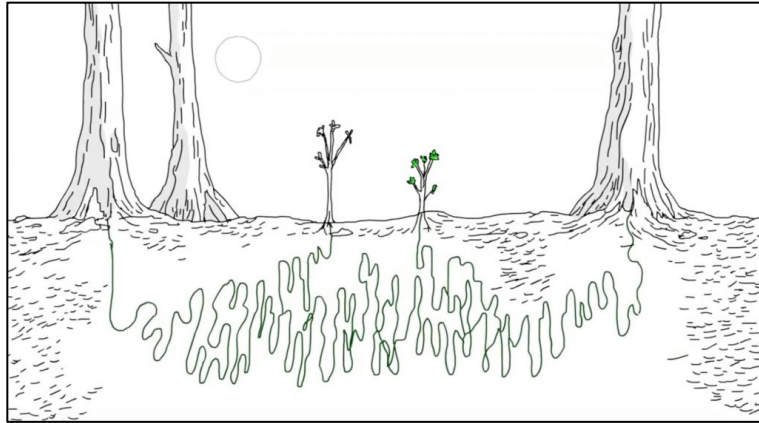


Figure 47: Intergenerational, interspecies situated rhizosphere network

*(Image Source: returntonow.net)*

### ***Introducing the framework***

I posit that an intentionally inclusive environmental education paradigm should follow the structure of the rhizome, existing through time and space, anchored in place, and connecting the experiences and epistemologies of disparate individuals and communities. As a network of living organisms, the rhizosphere is dynamic and adapts according to its surrounding context. So too then should an environmental education paradigm adapt to each location and chorus of involved communities. The Matsutake Research Group reaches similar, though slightly different conclusions, arguing that “the challenge is to follow cosmopolitan connections at the same time that we attend to gaps and awkward encounters” (Choy et al. 2009, 382). Similarly, in Anna Tsing’s recent ethnography tracing mushroom supply chains (2015), she is tentatively optimistic about the precarious potentiality of multispecies and multi-social (history, ecology, economy,

politics) assemblages. In particular, her analytic around collaboration as “work across difference” (29) is useful in cultivating an inclusive form of environmental education that recognizes and works across and through difference. As she reminds us, “big histories are always told through insistent, if humble, details” (111). Ogden and others examine similar gaps and encounters through a multispecies lens, exploring the world as “materially real, partially knowable, multicultural and multinatured, magical, and emergent through the contingent relations of multiple beings and entities” (Ogden et al 2013, 6). A rhizomic education in urban Los Angeles will be different than one in the rural central valley of California. Inspired by her experiences as an environmental educator, Cole (2007) calls for a very similar approach that integrates critical pedagogy, environmental justice, and place-based education. While her work focused on rural communities in the central Valley, I explore similar questions within the urban setting.

A rhizomic environmental education as I envision it therefore calls for the integration of 1) enplaced community-based pedagogies, and 2) plural epistemologies or “ways of knowing”. An enplaced, plural pedagogy necessarily draws attention to the relationality of the cultural, economic, and political histories and practices that coexist in the same space. Thus, Ballona is more than an ecological reserve; it is also the historic site of Tongva village Sa’angna, and embodies the history of Western development and indigenous erasure. The socially and racially narrow demographics of its users reflect broader issues around race, nature, and privilege in cities. While this may seem inclusive to the point of losing all specificity and context, this multidimensional, rhizomic approach can enable an integration of components critical to critical and creative pedagogy of socio-cultural flourishing. This necessitates the valorization of

“conceptual constructs of place” (Cole 2007) that rely on place-based and community-based nature knowledge and experience, such that EE programming is developed, literally, from the ground up. Community participation, narrating the ecological and social history of the broader landscape and that community, and using actual (not assumed) individual experiences would act as starting points for such an approach.

Drawing on Peterson et al. (2010), using a cultural lens can help “illuminate the fact that to resolve such conflicts we need to reveal the value-based assumptions that underlie perceptions and uses of the natural world. A cultural lens can also help us better understand the historical and cultural context within which power, both political and economic, is differentially distributed among conservation actors” (8). While their focus is on conservation, and primarily indigenous or rural communities, I suggest a similar tactic in urban environmental education for non-dominant groups. Along with their suggestion to incorporate local cultural resources, it is important to go beyond empiricism, and hear local voices speak are all valuable tools in urban environmental education. This is all the more critical in a city that is by its very nature a city of immigrants and racial diversity.

I also want to draw extra attention to the importance of this approach in requiring educators to rethink their own worldviews. That is, the kind of self-reflexivity practiced in CRP must also be exhibited here, in many ways to an even greater extent. Educators must question and examine not only the content they create, but also the frameworks they use and the value they place on certain knowledges and experiences over others. Importantly, I echo Bowers’ (2008) critique that what is lacking from critical pedagogy of place, and what I seek to reintroduce with the rhizome

metaphor, is the recognition that a ““thick description” (Geertz 1973) of local intergenerational knowledge should be a core feature of place-based education” (328). Indeed, as Gruenewald argues, “without teachers who are sensitive and knowledgeable about differences... ‘other people’s children’ can be marginalized, neglected, undervalued” (2014, 139). Specifically, the project contributes to an anthropology of knowledge and experience that, like Barth (2002) aims to “unravel more of the processes and dynamics of the human *varieties of knowledge*” (Barth 2002:11, my emphasis).

In Haymes’ analysis of a pedagogy of the ‘inner city’, he seeks to uncover the “pedagogical conditions that enable blacks in the city to critically interpret how dominant definitions and uses of urban space regulate and control” (1995, 114). In this kind of politically charged critique of urban space, Haymes is interested in “how relationships of power and domination are inscribed in material spaces” (114; see also Harvey 1996; Massey 1994; Soja 1989). While his focus did not take into account urban nature spaces, this framework still applies and is all the more relevant as the EJ literature has shown the many ways in which minority communities are disproportionately impacted by environmental degradation (Agyeman et al. 2002; Bullard [1990] 2000; Pulido 2000; Sze 2007). A consideration of the spatial relationship between ecological and social justice concerns in the urban setting cultivates a politically emplaced awareness of urban nature knowledge and experience. This is especially relevant for a rhizomic framework that is based in critical pedagogies of place; indeed most of the literature focuses on environmental education in wilderness or rural settings. However, urban socio-natures are equally rich and deserve further attention, both for the presence of wildness in the urban (Marris 2012), and the

ways in which communities are imbricated with nature spaces (Gottlieb 2007; Gumprecht 2001), even if it may be in ways undervalued by mainstream environmentalism.

### *LAAS as incubator setting*

The particularities of the urban setting make for an especially fertile context in which to explore the intersections of nature, culture, and power. It plays an important role in guiding the form and content of nature programs, as well as the experiences and expectations of participating students. Anderson argues that “urbanization and environmental degradation make it impossible for most children to get to a natural area” (Anderson in Kopnina 2012, 54). I would counter by arguing that most spaces contain some natural elements. Rather than feeling obligated to take children to “reasonably wild nature,” environmental education would do well to more intentionally anchor learning in the students’ local context, as one valuable piece of the puzzle. I offer essayist DJ Waldie’s (2014, 97) poetic description of a piece of Los Angeles nature in order to illustrate the many ways in which natural areas are indeed all around us, and which its diverse origins all contribute to the greater urban socio-ecological mosaic:

“Graywood Avenue is an asphalt and stucco fraction of the nearly uniform grid of Los Angeles, but nature is never absent. I walk down Graywood Avenue and nature’s reciprocal penetration always manages to break through my self-absorption. The tracks of snails glisten on the sidewalk. The stink of an irritated skunk lingers in the morning air. A coyote and I sometimes pause at the end of my block and watch each other before the coyote lopes into the Edison Company right-of-way. Mourning doves, mocking birds, scrub jays, and house sparrows accompany me, either in person or as a fugue of their calls interweaving overhead. A woodpecker was working at the bark of a backyard elm for several days this spring. I’d never heard that before. Mitered conures flock over my street. They’re immigrant parrots from the south. I’ve seen hawks perched on the dishes of my neighbors’ satellite television receivers. My walk is often punctuated by the warning cries of juvenile crows. The young crows are giving advice to other crows that I’m passing through their nature just as the crows are passing through mine. My suburban street is utterly commonplace but it’s also common ground for the crows and for me where nature is shared at every scale to shape our



behavior. I live nowhere but in nature's suburb, just as much the crows' as it's mine. I'm offered every opportunity to be wrapped in everyday nature there."

The LAAS is particularly well placed to test these approaches. It is in the research process that I came to recognize the spaces of flourishing where a rhizomic environmental education approach could provide some deeper insight and structure. A number of its program components already incorporate some basic ideas and experiences that speak to the philosophy of rhizomic education. In the following, I will draw on three field anecdotes that illustrate the potentiality of different aspects of the program for incubating a rhizomic environmental education: 1) community-based design, 2) plural epistemologies, and 3) the historicity of the nation and region in terms of settler colonialism and globalization. Though the framework is in its nascent stages and needs applied study, using LAAS as an incubator may prove fruitful to developing a richer, situated, politically aware urban environmental education.

This approach is particularly beneficial as programs in this study target underserved African-American and Latinx schoolchildren from Title I schools, all while being run and taught primarily by white, female (and a few male) volunteers of the baby-boomer generation, many of whom are former public school educators. I argue that if such programs are of growing importance in a world of Anthropogenic climate change, reaching audiences that have traditionally been left out of environmental discourse will require novel and inclusive methods.

<sup>105</sup> Importantly, a political economy analysis of race and education adds further nuance,

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<sup>105</sup> "Anthropocene is the moment in the early twenty-first century when the idea that humans and nature are not separate became commonplace, normalized, and accepted as real" (Mansfield and Doyle 2017).

demonstrating how public education is driven by capitalism and supposed by the societal structures of white supremacy and patriarchy (Gillborn 2005). We therefore need to unsettle nature learning by uncovering the exclusionary and situated nature of a program primarily driven by inquiry-based scientific epistemologies and settler wilderness values, acknowledge the frequently troubled histories of social change and industrial development, and integrate alternative ways of knowing nature.

### **Community-based place pedagogy**

#### ***LAAS: Urban school-shed approach***

At a standard Ballona pre-site visit to a Baldwin Hills area elementary school, students are told “you are connected to the wetlands.” This is initially an abstract concept, but then students visit Ballona Creek and look at birds through their binoculars and spotting scopes the docents have set up along the Creek. Once they arrive, the docents return to the idea introduced at a school pre-site visit:

“When it rains, a lot of times trash appears all along Ballona Creek. On the other side of that ridge it’s the Pacific Ocean so that trash ends up in the ocean. Remember to hold onto your trash, when you’re in your neighborhood or on your school campus, hold onto it and throw it in the trashcan, because if you drop it in the street it will eventually go in the storm drain and show up in our oceans”

Shortly after, while students are free to observe their surroundings, one student remarks:

“There’s trash in the water, it’s bad for the animals, the animals might be eating it and they can be dying. They think it’s food.”

A similar framing takes place at Kenneth Hahn tours. On the way to the Geology Station at Inspiration Point, volunteer docents ask students to use their compasses and binoculars to find first the Hollywood Hills and then Ballona Creek. Director of Outdoor Education Cindy Hardin often explains, “you know when you brush your teeth and spit? Well, the toothpaste is like rain and the watershed is the sink.” In this analogy the Hills are the sides of the sink and Ballona Creek is the drain. Once at the Geology Station, the station docent asks the group to look at a papier-mâché model she has built, while advising them not to touch. She takes out a spray bottle and asks for a volunteer. Picking one out of the half dozen or so hands that shoot up, she instructs the student to spray water at a specific point on the hills of the map. As intended, the water trickles down the hillside and collects into a painted blue squiggly line that runs off into the papier-mâché ocean. Cindy explains that “all the water that falls on this side of the hills ends up in the ocean. So everything that falls in the streets, and ends up in the storm drains also ends up in Ballona Creek that leads to the ocean.”

These ideas of trash ending up in the ocean and spitting toothpaste in the sink definitely hit home among the students. During one tour, a 3<sup>rd</sup> grader from an East L.A. school noticed trash in the Creek, commenting that somebody must have forgotten to put their trash in the trashcan. He went on to say “that’s why if I drop my Doritos, I pick it up!” The docent describes the dynamics of the watershed as a way to emphasize the student’s role and their connection to the natural landscape. It is a way to situate their lives tangibly into the materiality of LA’s urban nature. As docent Emily stated, “the wetlands can’t do everything for us. We rely on you boys and girls to

do something and go home teach your parents and other people.”<sup>106</sup> These are examples of the intentional ways in which this environmental education program is deeply local and place-based and attempts to consider students’ socio-political location in their daily lives. Though infrequent, these “situated knowledges” (Haraway 1988) hint at the validity of other ways of knowing and being in the world.

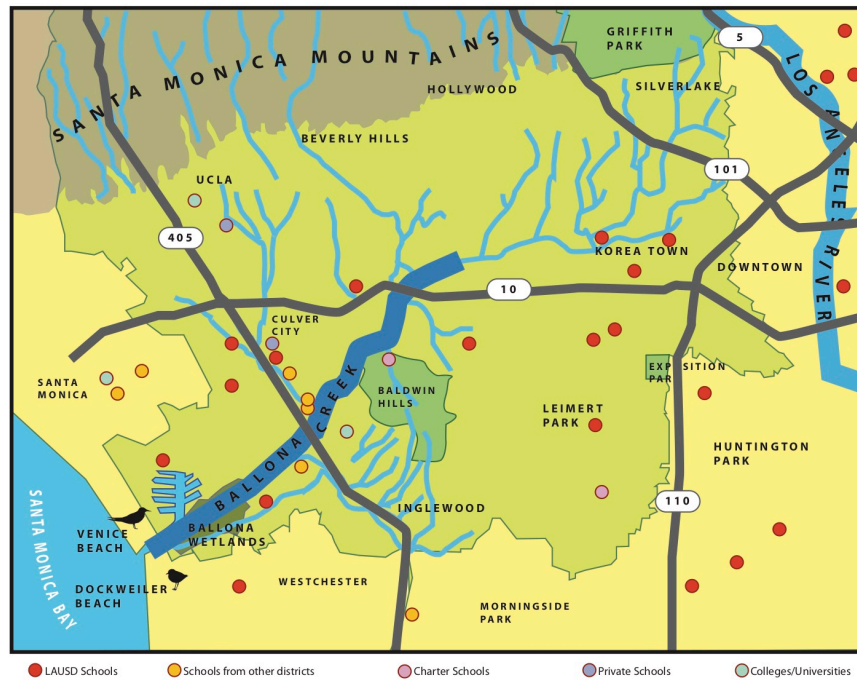


Figure 48: Los Angeles Audubon Schoolshed map, by Stacey Vigallon.

Going beyond appealing to local experience, the LAAS also has developed the Schoolshed framework as a way to connect the school context with place that more deeply incorporates

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<sup>106</sup> As part of UCLA’s Sustainable LA Grand Challenge program, Jessica Cattellino’s “Gender and Everyday Water Use in Los Angeles” is exploring similar questions, especially in terms of intergenerational learning.

students' local communities with the local landscape. Importantly, the school-shed is so defined and named because it is intentionally based within the Ballona Creek Watershed. It forefronts the watershed as a valid contextualization of urban socio-natures, akin to the watershed commonwealth approach first suggested by John Wesley Powell in 1869. For Char Miller, in the American west "seeing ourselves as inhabitants of watersheds is an essential step toward recognizing that these topographical features are the building blocks - as constraint and opportunity; metaphorical and real - of this climate-changed Earth" (Miller 2011). For environmental education, this depth of place-based pedagogy is important as it provides an ecological and spatial framework in which to situated environmental learning, by encompassing human, plant, and animal communities within it. It has real potential, as long as educators acknowledge the risk of framing the experience of all students in the Schoolshed as equivalent to one another. Adding in critical pedagogy would help to acknowledge experiential, community, and political differences and inequalities between, for example, those students living in Santa Monica with those in Compton.

The Teacher Fellowship program echoes this approach. In 2014, Los Angeles Audubon started a 4-week Teacher Fellowship training program, designed to give classroom teachers the tools to do environmental education on their own campuses. The first weekend workshop focused on watersheds, advertising that the exercise would "help to teach your students about mapping and map-reading, research, using compasses, on-site investigation and connectivity of a watershed"

(field notes). It quoted Powell's watershed definition in justifying that framework.<sup>107</sup> The interplay of water, nature, human settlement, and community is emphasized. However, problematic here is the invocation of schools and teachers as the source of content without speaking to the community and engaging in self-reflexivity around the content and embedded values.

This program is heavy on observational scientific methods and tools. Beyond looking at maps of watershed, a key tool for connecting to the watershed itself is through examination of drainage channels and storm drains. Suggested student activities include mapping the storm drains, looking for campus high/low ground, and matching channelized rivers and drainage to existing waterways. The activities are driven home with a suggested "bucket exercise" tracing all the trash that can end up in the ocean. This activity echoes a LA Times articles called "From the gutter: how your litter ends up in the ocean" (Xia 2015). It highlights how all of LA County is interconnected by a massive storm drain system that itself is based on pre-existing natural waterways. Ultimately, the emphasis is less on pollution and ecosystem services, and more on biophilia and moral judgment of the negative impacts of our actions on wildlife. Additionally, the approach does little to account for community context, and would benefit from integration of environmental justice literatures.

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107 "that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community" (fieldnotes)

### *Community-based learning from within*

Emphasizing the watershed is a novel and increasingly relevant way to anchor learning in place within a clear ecological framework. Still, such efforts like eco-justice, critical pedagogies of place, and the watershed approach do little to integrate a community-based approach. In discussing community places among the Lumbee of North Carolina, Blu remarks how community places “are socially constructed, contested, and reconstructed over time” (1996, 199). Rather than educational institutions and organizations seeking to incorporate the rhizomic histories, stories, and experiences of the communities they are teaching to, I suggest instead to flip the narrative to also include or start from the community themselves. As one community member commented under her breath at a LA County Parks Needs Assessment meeting, “why do they think we want that?” (fieldnotes). Even though town halls are held for community input, the underlying ideology is left unquestioned, and the difficulty of accessing these frequently weekday morning meetings is ignored.<sup>108</sup> This diversity should also be situated in the place in which participants live, play, and work.

Like the Reggio-inspired emergent curricula (Gandini 2011) popular with early childhood development, a first step may well be simply asking community members what they are interested in, designing curricula with their direct input (Bang et al. 2010). As Literacy for Environmental Justice founding director Dana Lanza remarked, “LEJ’s work is designed to help young people recognize and articulate what they love and to find ways to advocate for and

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<sup>108</sup> The PNA meeting was at 6pm, barely enough time for people to leave work. Though it did offer limited childcare, almost no one under the age of 50 (in a neighborhood where most new residents are young families) was in attendance (fieldnotes).

protect those things” (2005, 218). In that way, the content emerges based on stakeholder interest and need. In Marin and Bang’s study, indigenous teachers planning a science lesson “root their understanding of science in their sociocultural histories and social context” (2015, 39). In discussing the science of volcanoes, changing mountain ranges, etc., the authors make links to potential units on policy, land rights, and sacred spaces, shifting from “the teaching of Western science to the teaching of Indigenous science, which incorporates all of these aspects” (2015, 40). This approach to learning from within is not as unstructured as it seems; rather it lets a combination of the environment, student, and teacher guide learning.

At Stoneview Nature Center, a large sign depicts its use of health and community through five pillars: healthy body & healthy mind, civic art, healthy community, healthy soil & food, healthy water. The tagline emphasizes “sharing ideas, engaging with each other, understanding our land and our history so we can make positive changes in our lives to improve our health, community and happiness.” Similarly, the Center’s Civic Art Gardens as a form of “collaborative participatory art” make an appeal to building a sense of place through broader cultural histories, or what Fallen Fruit calls the “legacy of past residents.”<sup>109</sup> Introducing the art installation, a sign entreats visitors to “Take a moment to look out.” It describes how Stoneview is “both a single spot but also an interconnected node in the overall landscape of Los Angeles. The communities, the watersheds, the landscapes, and civic art gardens all provide local and global links... to form

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<sup>109</sup> This idea was introduced in a Fallen Fruit Master class on fruit tree planting and pruning. The inaugural course was for 15 participants, who each had to apply to the class explaining their involvement in their community and why such a class would benefit their community. I applied and participated (and took home 3 fruit trees in the process to plant in public spaces).



a stronger connection to the people around you.” While the effort could be critiqued by pointing out the generalized nature of ‘community’ as referring to all of Los Angeles, the underlying principle is sound.

A community-based approach to environmental education has strong potential to increase engagement and interest for those communities that traditionally don’t engage in or have access to environmental education. It therefore responds to social justice concerns by working with and from, rather than on behalf of, these communities empowering them and giving voice to their environmental interests and concerns, whatever they may be. It responds to concerns voiced by activists like Rue Mapp (founder of Outdoor Afro) who critiques programs that “never mind their parents, their grandparents, people who could be contributors” (Mapp 2014, 77). For example, in Bang and Medin’s (2010) study, a summer science program was designed through community-based participation action research including elders, families, teachers, and community leaders. That is, it is not enough to include what the instructor thinks the students’ culture might be, but rather to both ask the community and make sure to practice cultural humility around their own experiences and epistemologies.

What might the output be if for example the volunteer docents, the students’ teachers and parents, and other community leaders all participated in the decision-making around LAAS environmental education programs’ location, content, experience, and values? By enabling community members as actors and decision-makers, non-profit programs can leverage local knowledge and experience to make standardized ecology and stewardship discourses more intimately (spatially, bodily, and culturally) relevant. As environmental scientists Stanley Asah

and Dale Blahna have shown (2012), “volunteers’ frequency of participation [in urban conservation] is most motivated by personal and social benefits rather than by environment-related reasons” (470). A similar approach can be applied to urban environmental education, with a special focus on local communities. In doing so, participants become more likely to act as resilient stewards, informed about broader political narratives yet anchored in the diversity of local experience (Brockington 2004; Charnley and Poe 2007; Krasny and Tidball 2009; Uzzell 1999; West 2006).

A fundamental aspect of indigenous epistemologies incorporates intergenerational learning into what is taught, and how (Barnhardt and Kawagley 2005; Nabhan 1997). Scholars like Basso (1996) and Cajete (1999) point to the ways in which indigenous communities rely on elders to transmit knowledge, place-names, and cultural memory to youth. Many close-knit non-dominant groups engage in a similar process, including urbanized Latinx and African-American communities. While potentially valuable, from a feminist perspective I also do not want to discount the ways in which such practices may sometimes themselves be oppressive and/or patriarchal. Rather, by integrating “elders,” or indeed any respected community and familial members in addition to the non-profit volunteers, educators, and associated schoolteachers, programs can incorporate a community-based form intergenerational learning. For example, at the Ballona Wetlands, the majority of docents are white women over the age of 60. Though they technically are elders, the critical difference is that they are not elders of the community that is being taught, but instead can be considered outsiders, both ethnically and spatially. Alternatively, in an interesting variation on traditional intergenerational learning, the Baldwin Hills Greenhouse Students from local high schools not only volunteer or intern as docents in the education

programs, but also participate in the after-school programs and restoration work at partner elementary schools. As one high school Greenhouse Intern remarked, “we started working with elementary school students as part of the program, which was really Leo Politi. It was really funny because every single time we went to their school they were saying “Dorsey’s here, Dorsey’s here!” So they were like really excited we were there and we taught them” (Julia). The power of teenagers teaching children, and the ways in which the teens see themselves in the kids and vice-versa lays a powerful foundation for cultivating a community-based environmental education.

It is important to note that representation is also critical in the success of this work. Indeed, the Director of Outdoor Education was aware that she did not have enough local community support or involvement in her programs. She recognized that when she, as a tanned, outdoorsy, older white woman ventured into a local Black or Latinx church or store to advertise her program, the lack of representation created a disconnect that was difficult to bridge. As the outsider, she perceived community members reluctance as a lack of trust, wary of someone of the hegemonic social group penetrating the community with its offering. In the education field, statistical analyses of student outcomes, as measured by standardized testing, retention rates and their relationship to teachers’ race, generally confirms her experience (Amaya et al. 2018; Borman et al. 2018). Education scholars like Kim Collins take this a step further to critique the “focus on training students in STEM without understanding how these students see themselves and their interests valued” (2018, 144). It is therefore critical to integrate representation in both the instructor, as well as the content material.

## Epistemological pluralism

### *Plurality of knowledge*

In applying a critical pedagogy of place to environmental education then, I want to ensure that students learn a “plurality of environmental ideologies” (Stevenson 2007, 143). The value of such an approach is political as well as pedagogical. Knowledge is not objective and universal, but rather, should be framed as knowledges in the plural, produced by multiple sites, forms, and actors, and are “differentially scaled, linked, and mobilized” for different social and political aims (Choy 2005, 16). As such, “knowledge functions as a form of power and disseminates the effects of power” (Foucault 1980, 69). Politically, spatialized stories of knowledge systems foster more complex analyses of their production, circulation, and application through a “geography of power/knowledge” (Massey 1999, 40; see also Foucault 1980). I advocate for plural knowledge from a place of equity – the hegemonic knowledge systems must make room for subjugated knowledges in order for members of these communities to have educational equity. As such, it is less a question of epistemological equality than epistemological equity.

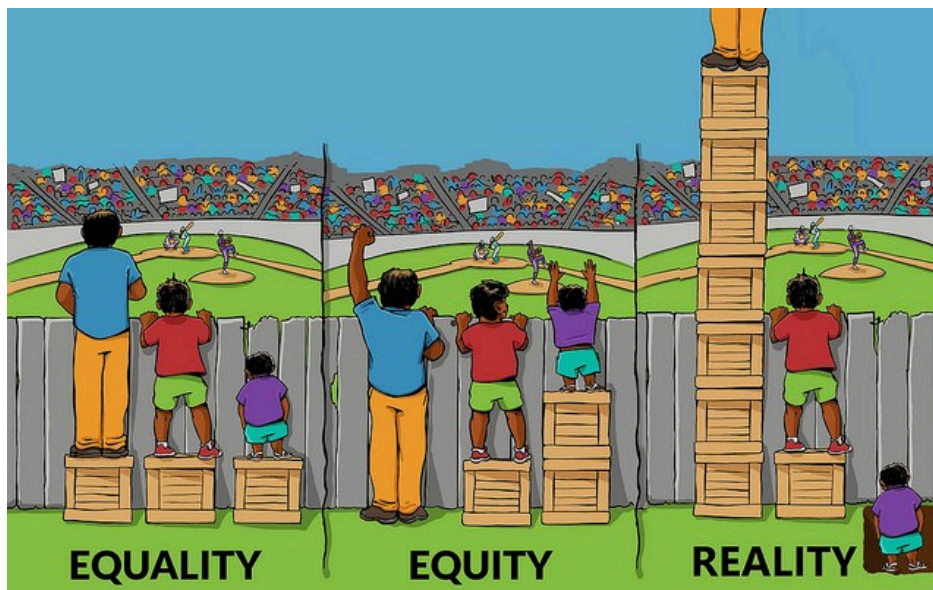


Figure 49: Equality, Equity, Reality comparative chart  
(Source: Interaction Institute for Social Change)

Epistemology as a ‘way of knowing’ integrates intellectual, physical, emotional, and spiritual knowledges into a corpus that is dependent on the spatial location, culture, and personal experiences of every individual. Knowledge is therefore intimately connected to place as a constellation of embodied practice and “stretched-out” social, political, and economic relations. Pedagogically then, with an emplaced approach, it also becomes important to forefront folk, local, and indigenous epistemologies as a way to rethink our relationship to land and nature. This implies moving not towards epistemological relativism, but rather a pluralism wherein each has a different role to play, depending on the context (Cobern and Loving 2001). It is about providing a diverse repertoire from which to draw upon, supporting “students’ navigation in and through multiple ways of knowing” (Bang and Medin 2010, 1010). Therein lies the need for the rhizomic flexibility that is founded on growth and sustainability, adapting each educational program to the current temporal and social context of the participating group.

In the vein of critical pedagogy, we must also attend to “who speaks, under what conditions, for whom, and how knowledge is constructed and translated within and between different communities within asymmetrical relations of power” (Giroux 1992, 2). Relatedly, a critical analysis of the economic (capitalistic) underpinnings of urban development at the expense of urban nature should be attended to as both an often detrimental environmental epistemology, and thus as a key driver of the current state of urban nature. Like the rhizome, not every node or community is possessed of equal power and influence, even if they are all important to the lived experience of the system. The rhizome therefore enables us to analytically link back to the value

of epistemological equity through intentional plurality of knowledges. While scientific knowledge is fundamental to the central theme of environmental literacy in environmental education, a rhizomic approach enables a positioning of science as one, rather than the only, way of knowing the world (see Disinger and Roth 1992).

### *Scientific knowledge*

As Johnson (2012) argues, Standard or “Western science intends itself to be the universal set of boundaries governing what is knowable about our world and universe” (833). Indeed, science as universal “diminishes the legitimacy of knowledge derived through generations of naturalistic observation and insight” (Kawagley et al. 1998, 134). Recognizing all sciences as culturally situated enables students to understand “how WMS is a particular way of thinking about the natural world, rooted in Western culture, and how the purposes of WMS could be changed to create future sciences that better meet the needs of diverse societies” (Snively and Corsiglia 2001, 23). During European exploration and expansion, scientific knowledge and advanced technologies were used as a yardstick against which to measure whether the indigenous cultures encountered were ‘civilized’. Being possessed of their own knowledges and sciences that differed from objective inquiry-based science, they invariably failed this test, justifying processes of colonization and erasure.

According to Cobern and Loving, science therefore tends to be taught “at the expense of indigenous knowledge and this precipitates charges of epistemological hegemony and cultural imperialism” (2001, 52). Kim TallBear, scholar and PI at Indigenous STS has a more nuanced view, considering how “American Indian metaphysics” can be brought into the lab of inquiry-

based science, and how these techno-sciences can support Indigenous self-determination. In a blog post on diversity and inclusion in the sciences, Tallbear reflects on a Native student's comments about culture and science, highlighting "the complex connections between culturally relevant science education, tribal institution-building, and flourishing in Indian Country" (2011). Indeed, Indigenous peoples "expand their governance authority... by securing a place at the policy table by talking the privileged global language of technoscientific rationality" (Tallbear 2014, 177). In drawing attention to these tensions, I want to highlight that in a culturally diverse setting, there persists a problematic focus on the questions and technologies of inquiry-based "hard science" as an "objective neutral good that benefits all and not a particular kind of knowledge that fits within a particular way of living and enacting the world" (Reardon and Tallbear 2012, S240). As TallBear argues, diversifying science practitioners will not only lead towards greater equity in the practice of the field, but can also open science up to more diverse research questions, methods, and innovations. She goes on to say that accepting "multiple truths" is insufficient; rather, we should follow Haraway's call for "double vision" to reveal "both dominations and possibilities unimaginable from a single standpoint" (Haraway (2008) in TallBear 2014). Doing so enables us to focus our attention not only on diversity, but also and more profoundly on how that diversity changes how science itself gets done.

### *Community-based knowledge*

It is therefore critical to move towards epistemological pluralism, integrating multiple ways of "reading the world" into the curriculum (Freire 1970). Specifically, we need to go "further into the implications of racism, history, and definitions, and attempt to deconstruct old prejudices" (Snively and Corsiglia 2001, 24). A properly critical emplaced environmental program reframes

“notions of environment and nature as culturally specific ideas belonging to the dominant, middle- and upper-class White culture,” and incorporates others alongside (Cole 2007, 38). As Cole remarked in reflecting on her experiences as an environmental educator, “in the midst of our hip waders, maps, water quality testing equipment, and computers was an unanswered question of history, culture, politics, and power” (Cole 2007, 36). We therefore must challenge inquiry-based scientific neutrality as *the* way of seeing the world to turn towards situated knowledges from a female, traditional, or marginalized perspective (Haraway 1991, 2008).

Like Marin and Bang, I too am interested in how educators can navigate “community-based ways of knowing and Western scientific ways of knowing to develop shared epistemological frames” (2015, 31). What, for example, might result if in learning about the Ballona dunes, students were guided to consider how Tongva people used and yet were discursively erased from this landscape, use inquiry-based science to understand tidal flows, and explore local and participant knowledge to discuss community experiences of bird migration? The situated understanding that results would be richer for its pluralism. As David Turnbull has described, “though knowledge systems may differ in their epistemologies, methodologies, logics, cognitive structures or in their socio-economic contexts, a characteristic that they all share is their localness” (Turnbull 2000, 19). While much of this literature has focused on indigenous (TEK) knowledge, similar arguments can be made for local or folk knowledges that grow out of a community’s dwelling-in-place (Ingold 2000).

Folk knowledge is “based on personal experiences, passed down generational knowledge, local sayings, and other folk ways of learning and knowing about the environment” (Zanotti in



Kopnina 2012, 160). Their intimate localness also means integrating an awareness of learning as profoundly culturally-bound (Raffles 2003; Rogoff 2003). Local/folk knowledge can also be problematic, for example in rural (often conservative) places that support resource extraction and reject indigenous treaty rights. In these contexts, I return to the social justice imperatives introduced earlier in this chapter to re-center the knowledges of subjugated communities in order to diversify the practitioners and practice of science. My concern is less with giving voice to the white majority of small towns and rural places, and more with diversity and equity as in science-based environmental education through an intentional inclusion of place, culture, and the varied histories of the subjugated minority.

### *Political knowledge*

Initially I wanted to advocate for the inclusion of indigenous epistemologies in environmental education courses. However, deeper consideration has led me to re-center the emphasis not on a generalized indigenous worldview, but rather on the political story of indigenous land use and subsequent cultural erasure on the part of primarily white settlers. In indigenous communities, by advocating for community-based ways of knowing and doing in learning is critically relevant (Aikenhead 1997; Cajete 1999). How might such an approach differ when applied to a non-indigenous community (e.g. Black and Latinx schoolchildren) in a settler colonial society? I believe the answer lies in cultivating a politically accurate knowledge of the indigenous experience as part and parcel of the development of the local built, cultural, and natural environment.

This approach can combat indigenous that is a defining aspect of settler colonial societies. In tribal communities, making science education relevant can take the form of including storytelling and understanding the self multidimensionally, where wildlife are relatives and the land itself is part of the community (Archibald 2008; Cajete 1999). In non-indigenous communities in a settler colonial society, incorporating indigenous histories and experiences is part of a historicizing project, and also a way to hear the voices of one of the subjugated communities of that space. If science is but one form of seeking knowledge, then science-based environmental education has the potential to move past its current normalizing objectivity to embrace the full range of knowledges that humans create.

Similarly, taking a more politicized stance to environmental education and the incorporation of plural knowledge also requires a frank narration of the political economy of urban environmental degradation. Some might argue that the main culprit of climate change and dwindling biodiversity, beyond anthropogenic impacts, is the role of rampant capitalism and accumulation of lands and environmental resources for profit. One need only look to the decades-long battle to save the Ballona Wetlands from development (which ironically is predicated upon destruction), or to the continued availability of Kenneth Hahn State Recreation Area as a park due to its unsuitability for development to see the relevance. To understand why so few open green spaces remain, and those that do are continually subject to protest and debate, one must understand the political economy of urban development and its role in the destruction of urban nature (Heynen, Perkins, and Roy 2006). Political knowledges, whether re-centering indigenous and other subjugated histories, or critiquing the political economy of urban green spaces, are therefore equally important in creating a situated urban environmental education experience. The final

component, enabled by an expansive rhizomic framework, goes beyond what is considered valid (and valued) knowledge, to incorporate individual experience, as I will show below.

### *Individual lived experience*

In addition to community-grounded, place-based education, diversifying the content and epistemologies embedded in an environmental education program and adapting or grounding these materials in participants' lives takes an important step towards problematizing EE reliance on inquiry-based nature ideologies and methodologies. In addition to culture, the individual experience is a key component in local knowledge of environmental education content. In many ways this calls for a phenomenological approach to environmental education analysis and design, one that "offers a way to deal with the "richness" of place, where the ecological and the cultural, the human and non-human, the local and the global, and the real and the imaginary all become bound together in particular formations in particular places" (Jones and Cloke 2002, 6).

The LAAS programs rely on hands-on and in-person nature experience, citizenship practices such as invasive plant removal, and connecting to students' local lived experience as techniques of place-based learning (Sobel 2004; Smith and Sobel 2010). Despite the power of the informal outdoor setting, often the format is still reminiscent of the sage-on-the-stage instructor, except instead of a stage they are at the front of a line of students. Instead of moving past the tools of a science lab, programs like LAAS actively rely on these same tools and attendant frameworks to valorize the outdoor learning space as a "living laboratory." Rather than letting student experiences, voices, and interests guide the content, instead content is uniform (as it responds to state standards), and students are only selectively called upon to contribute and interpret. To

change the narrative, greater weight could be placed on “listening-in” as a methodology, or the fuller use of all the senses to engage the experience (Zanotti in Kopnina 2012, 160).

The role of individual embodied experience in the construction of place-knowledge cannot be underestimated. Hugh Raffles for example describes how Amazonian places are constructed through bodily and discursive experiences of local people (1999). Some argue that a central to local knowledges (see below) is in fact the “tacit knowledge embodied in life experiences and reproduced in everyday behavior and speech” (Cruikshank 2005, 9). Listening-in and paying attention are powerful tools for an embodied, intimate knowledge we don’t often see. Herein is a space where outdoor environmental education programs are already on a path towards intimate, relevant, emplaced nature knowledges. One area of further investigation will involve exploring what happens when these knowledges clash. While I cannot yet answer this question, I argue that the importance of maintaining a social justice and relational perspective, wherein the blend of knowledges is in service of subjugated communities.

In Tim Ingold’s rich treatise on the perception of the environment, he advocates for a deeper awareness of the body and moving through nature, and the ways in which this process cultivates a “storied knowledge” (2011). These storied knowledges are achievable not only within the more natural landscapes, but also in the urban setting, as in de Certeau’s “unfolding... stories” of urban perambulation (1984, 110). In this way, greater emphasis could be placed on both the students’ movement through the landscape on nature tours, as well as their own movement through their urban communities. Frequently, as Ingold reminds us “green spaces are for looking at, not walking on,” hence the prevalence of trails and paths we create that crisscross the

landscape (2011, 44). Certainly animals do the same, a well-worn path being easier to travel than forging a new one. The relevance then is not so much about the path, or sidewalk, itself, but rather the way in which attending to embodied individual movement places people *in* the world and enables them to perceive it more fully.

Ingold goes a step further to argue that “locomotion, not cognition, must be the starting point for the study of perceptual activity” (2011:46). The implication for urban environmental education programs is that rather than walking from station to station, and placing the bulk of learning at those sites, rather educators should better integrate the process of accessing the site itself. As the saying goes, it’s about the journey, not the destination. If we consider places as being imbued with multiple layers of meaning, history, and memory, then we must also attend to the *processes* by which these spaces are constructed, and the meaning they hold for various groups as well as individuals. By paying closer attention to what students see and feel on their journeys, we place greater value on the haptic engagement with nature as way for the individual body to “sew itself in” to the textures of the world along the pathways of sensory involvement” (2011:47). Thinking through this framework reminds me of the student who stopped at every sound to see if he could see a coyote, or the other student who touched all the plants, asking to taste the lemonade berries but being told not to (fieldnotes). By privileging this type of knowledge, educators can open up the types of activities and associated knowledges that are valorized in environmental education beyond inquiry-based science and intellectual exploration. Acknowledging the need and seeking every opportunity to expand beyond mainstream knowledge, experience, and location/format offers a small step towards an inclusive and politically-conscious nature education paradigm.

### *Mapping nature individualities*

Cognitive, memory, and story maps are all ways by which we can acknowledge individual nature experience in the design of urban environmental education. In conducting my semi-structured interviews, I asked interviewees to create cognitive maps of the nature in L.A., situating nature in relation to their homes. The results were revealing of the ways in which personal experience, situated within the politics of class, access, age, and race, dictated what and where each person found nature to be. Specifically, the college-educated, white, late-middle-age or retirees, especially those that grew up playing outdoors, drew maps that incorporated what I call “big nature” spaces. From Program Director to volunteer docent to training speakers, the maps presented striking similarities. While some included more landmarks of the built environment, the majority focused on big nature, even those spaces at a significant distance from their own home in places that were no longer technically L.A. More local ‘big nature’ on these maps included Griffith Park, Madrona Marsh, the Santa Monica Mountains, the Freshwater Marsh and the Ballona Wetlands, and of course Kenneth Hahn State Recreation Area. Those more distant ‘big nature’ spaces included Palm Springs, the High Desert, and the Channel Islands. Simply, their maps reflected a local nature experience (informed by settler colonial nature ideologies) very different from the young, minority, urban participants of the study.

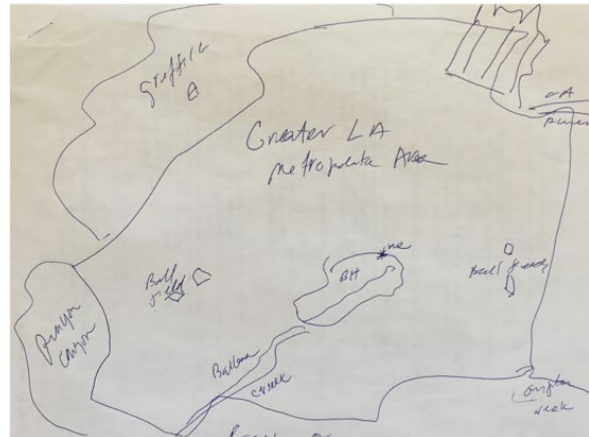
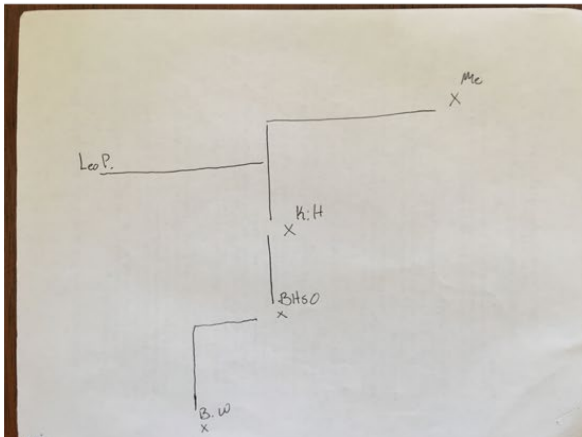
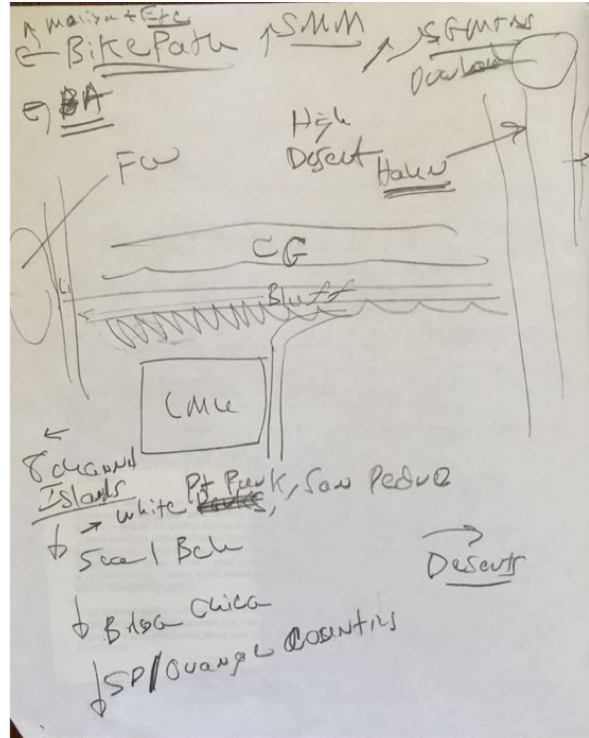
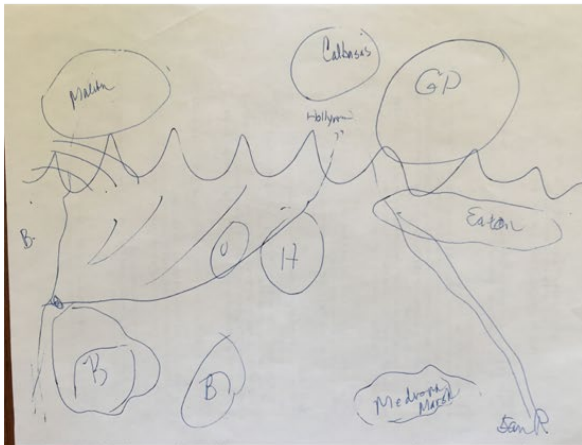


Figure 50: Cognitive maps  
 Clockwise from top left: Volunteer docent, Docent training speaker, Dorsey High school intern, BHC Director

By contrast, the younger, primarily African-American or Latinx study participants drew strikingly different maps. It could be argued that these maps, rather than focusing on ‘big nature’ instead centered on a profoundly urban and more intimate nature experience. Rather than large parks, these maps tended to include city streets as key landmarks. Their homes were more

centrally located, and larger in proportion to the rest of the nature spaces on the map. The high school interns' maps, students who worked in restoration with LAAS and had led countless tours instructing children on habitat, ecology, and compass and binocular use, were remarkably simple. Their homes and the two key sites of environmental involvement (Kenneth Hahn and BHSO) bore equal weight. One drew a grid to represent L.A. city streets, while also including a very granular, intimate depiction of nature, showing individual trees in the hills, and kelp and birds in the ocean. The other also drew the viewer's attention to the expanse of the "greater L.A. metropolitan area". A third interview subject included baseball fields in his map, pointing to those very urban spaces of personal value to him, as they were where he spent much of his time taking his son to baseball practice. To mainstream environmentalists, the L.A. grid, a school, and baseball fields would not be considered "real" nature.

Both groups of mappers had received extensive training over weeks and months about local nature via docent training, conducting tours and pre-site visits, and volunteer field trips. Yet, despite this similar training, it is evident that their community as well as personal experience profoundly impacted their views of nature. I therefore have described inquiry-based, folk/local, and indigenous epistemologies both for the value of their culturally-specific worldviews, and for the ways in which individuals experience learning and nature within them. As McAnany remarked, "we need more knowledge than just the correct cultural interpretation... it is also necessary to gain an appreciation of the value of the learner" (2009, 7). This added lens, or node on the rhizome, integrates a level of intimacy with nature learning that tends to be undervalued when the focus is on social justice or ecological knowledge, or a combination thereof.



## **Settler colonial layers**

### ***“You are on Tongva Land”***

At a recent public event at the Hammer Museum, Tongva artist Mercedes Dorame, along with Native lawyer Angela Riley, and Fowler Museum archaeologist Wendy Teeter, spoke about indigeneity, repatriation, and land. The talk was entitled “You are on Tongva Land” and is part of the Hammer’s Made in L.A. Biennial Summer Exhibit. The Exhibit is designed to showcase local artists who “exemplify the diverse and creative landscape of Los Angeles today” (Hammer Museum 2018). While I was unable to attend the talk in person, I did watch the livestream webcast. Woven throughout the conversation on art, repatriation, and sovereignty, was the question of land, and indigenous epistemological and ideological frameworks in relation to land.

In her work, Mercedes Dorame remarked that she felt the need to go to “spaces that were meaningful to me - that’s what propelled me out into the places that had a personal connection”. She described the importance of physically and emotionally connecting to the land, both to create a connection to the past, but also to reclaim them for the future. Most environmental education programs apolitically frame Native people as residing exclusively in a past temporal and physical landscape that is all but gone. By contrast, in her work as a Native person Dorame forefronts the need to “have the moments of healing and reconciliation for this area that really saw a lot of destruction and sad moments,” subsequently “look[ing] at these spaces anew and reclaim them in a way.” Wendy Teeter cautions that despite being from L.A., her experience and connection to the land is different though equally valid. These approaches provide a foothold for a more integrated, situated understanding of land, nature, and culture in the city.

The last element of a rhizomic environmental education is in part a move of political resistance, re-centering of settler colonialism as a persistent structure in America today. Expanding on Gruenewald's decolonization and reinhabitation approach to a critical pedagogy of place, to achieve the transformation he seeks, it is critical that decolonization uncovers how settler colonial logics are reproduced. As Calderon states "without such exercises in decolonization, it is impossible to achieve goals of sustainability and the wedded notion of a community building that rejects anthropocentric and Eurocentric understandings of land and citizenship" (2014, 28). Such an analysis can therefore "integrate indigenous and non-indigenous lives, while sustaining attention to power" (Cattelino 2011, 2). Often, Western nationalistic claims to "conserve and develop national resources, framed frequently under the rubric of Western science, often disenfranchise marginal communities from the right to steward local environments" (Moore et al. 2003, 22). In a settler state, this directly impacts indigenous communities, but also non-dominant minorities like African-American and Latinx people living in the inner city. Calderon accordingly shows that "while settler colonial violence and oppression is not an explicit aspect of place-based education, it nonetheless fails to meaningfully engage colonial legacies in education and particularly how conceptions of place have been involved in their continuance" (2014, 25).

Following Calderon, engaging these settler colonial legacies uncovers their influence on the degradation and restructuring of the land itself and on contemporary urban perceptions of nature and wilderness, and acknowledges the violence done toward indigenous people to produce them. To uncover settler colonial influences on the definition and shape of nature in Los Angeles, environmental education programs could explain the source of the city's water supply (forcibly taken from Owens Valley, the homeland of Paiute communities, or narrate the acquisition of

Mexican lands and the transformation of its peoples into laborers. They could also continue to bolster the history of oil extraction in Los Angeles and at both Kenneth Hahn State Recreation Area and at the Ballona Wetlands, both in terms of the ecological impacts of this exploitation, as well as its implications for urban development and the removal of green space. In acknowledging the violence done to Tongva and Tataviam peoples who *continue* to call the Los Angeles basin home, programs could more robustly forefront the maps and stories of historic and *present* Tongva land and communities.

Additionally, drawing attention to the structures of settler colonialism embedded in environmental education enables us to answer scholars' calls to transform science education to "relentlessly empower and build from ontological heterogeneity reflective of peoples' lived lives, particularly those historically dispossessed and dominated" (Bang and Marin 2015, 542). Though the students in the LAAS programs I studied are not (to my or the program's knowledge) of indigenous descent, as members of "historically dispossessed and dominated" groups, Latinx and African-American students should also have their histories and lived experiences integrated into the learning process. As Charles Mills articulates, the nation, and certainly Los Angeles as a frontier bellwether city, is run by structures of governance and power wherein white American wealth "rests on red land and black [and brown] labor" (2003, 188).<sup>110</sup>

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<sup>110</sup> See also Morgensen 2011

## **Conclusion**

Rhizomic environmental education is my attempt to productively integrate the various areas of my fieldwork into a more equitable form of environmental education. Drawing on literatures in knowledge production, racialization of nature, and place-making, I have sought to create an interdisciplinary approach. Namely, this framework merges epistemological pluralism, local community-based experience, and situated histories such as settler colonialism and slavery to temporally, spatially, and culturally situate nature learning.

In doing so, and following applied anthropology efforts, I hope my research can inspire some small conceptual and structural shift in how we approach nature knowledge, value, and experience for contemporary city-dwellers of color. My push for rhizomic environmental education comes out of social justice imperatives to give voice to non-dominant groups and subjugated knowledges and experiences. However, it also has relevance for white participants, better informing them about the diversity of environmental value and experience, making them aware of their white privilege, in order to cultivate a more justly diverse environmentalism.

## CONCLUSION

### **Reframing the environmentalisms of nature education**

Environmentalism is like most other social movements. The most effective activists demonstrate a group identity, sense of agency, and perception of injustice in order to organize to effect change (Pulido 1996). For the majority of low-income people of color however, these characteristics are not present, especially for traditional environmental concerns around wilderness preservation (Gamson 1992). The environmental justice movement sought to change this, with major environmental organizations taking greater interest in the environmental hazards suffered by these minority groups. Like Maslow's hierarchy of needs, they were premised on the idea that a person must first have safe food, water, and a roof over their head before considering such "luxury" efforts as nature preservation. However, it is dangerous to assume that by adding environmental and social justice issues for poor minorities and the working class to an organization's project agenda, these groups will automatically join the fight for traditional mainstream white values around nature and wilderness preservation. That is, not only the "concerns of the disadvantaged," but also their ordinary nature engagements must be considered in structuring contemporary environmental values and initiatives.

Tellingly, the World Wildlife Fund (WWF) re-centered its focus away from protecting charismatic species to "committing itself to protecting biodiversity, promoting sustainability, and building 'a future in which humans can live in harmony with nature'," emphasizing welfare of local communities (Thiele 1999, 159). The anthropological literature on this topic is both extensive and critical (Li 2007; West 2006). The turn to the local, with an emphasis on sustainability can certainly be a positive one; in what ways might these values shift if the

community members had a more direct role in their creation? A number of scholars have explored this question in both rural and urban communities, among both impoverished minorities and affluent whites. They all point toward the precarious potential of these kinds of community-environmentalist coalitions to reach collaborative, just solutions. A more inclusive environmental stewardship value system might follow Madrona Marsh Director Tracy Drake's approach. Inspired by her Native American ancestry, she believes that "our role in nature... our role in life is as temporary stewards, not stewards, temporary tenders... stewards would assume you are over nature, but we tend it." Her perspective speaks to caring for nature as one would care for a close family member, calling to mind a relational epistemology that informs environmental values. Therefore, planted within contemporary urban environmental education are the seeds for a personal, affective nature relationship, as long as programs take care to include community experience, local history, and an awareness of political inequity around urban nature.

Despite a place-based and environmental justice-oriented motive, environmental education program execution is limited because it fails to integrate a deeper consideration for personal and cultural experience with nature, and for additional epistemologies beyond those seeking to explore wild spaces through science. I would suggest emphasizing and building off of these epistemologies rather than exclusively promoting a white mainstream science-based environmentalism. Further, although some argue for an intertwined relationship between environmental belief and action, in reality there is often an observed gap between environmental values and behavior. In one study, approximately 72% of respondents self-reported a gap (Kennedy et al. 2009). While the study identified household, individual, and societal barriers such as a lack of knowledge, time, or access, an anthropological analysis could contribute further

insights by integrating a situated understanding of culture and race. This type of analysis could illuminate why some people may hold pro-environmental values and yet do not act upon these values.

It is in the “third spaces” of subjugated knowledge where we should attend to alternative ways of knowing and feeling about the environment (Bhabha and Rutherford 2006). Reaffirming the political and social histories of local places, and integrating cultural memory and community experience into environmental knowledges and narratives enable a local, community-based, social justice environmental education. For African-American children, there is great potential in educating “from an African-centered perspective [that] emphasizes heritage through the veneration of ancestors, nature and spirit in daily life” (Byrd and Jangu 2009, 204). One only need look to the numerous Africa-inspired schools, practices like Kwanzaa, and even pseudo-African names to see the resonance of this type of approach in Black communities.

For Latinx children, this could be situated in what Carter calls a “Latino environmental ethic” that “has a basis in Hispanic and indigenous cultural traditions and values, in a transnational field, which offer a sustainable alternative to values and practices that are endemic to Westernised capitalist societies” (2016, 11). Geographer Devon Peña argues that a Latinx stewardship ethic is based on land resources, the sacred, and a rejection of US imperialism (Peña 2005a, 2005b). Similarly, in her ethnography of Hondagneu-Sotelo, in ethnic community gardens gardeners “experience the restorative power of being in a garden that looks, feels, and smells like their original homeland, literally rooting their communities and culture in this part of the earth” (2014, 119). Peña, describes how, in creating the South Central Farm of Los Angeles, a

7.5 acre vacant lot-turned-community-garden, the farmers were in fact conducting an “autotopography”, or “process of self-telling through place-making” (2006, 6). For them, environmental engagement wasn’t about toxic hazards, wilderness preservation, or native landscaping; it was about connecting to nature in culturally relevant ways that thereby cultivated a community with a strong sense of place.

The gap between these community-based and culturally-informed ethics and practices, and white mainstream American environmental ideologies, are evident in urban environmental education programs. Too few are designed from within the community and allow for environmental values and knowledges that differ from the mainstream; indeed, Mujeres de la Tierra was the only program in the vicinity of the environmental education programs in the Ballona Creek Watershed in my research of local environmental organizations. Unfortunately, they have only a limited community presence, working primarily at the municipal level to advocate for the Latinx community.

The lack of on the ground presence of these types of organizations limits recognition and implications for knowledge production and urban environmental stewardship since, as Braun describes, “nature continues to be a material and discursive site through which effects of race are produced and naturalized even after the apparent dismantling of biological racism” (Braun 2003, 176). If environmental organizations were to take such a ground-up approach, looking at how communities currently or plan to engage with nature and supporting and expanding programs from there, they might reach a place where environmentalism is embraced and supported by many. Non-dominant participants would see themselves within the programs’ narrative and



content, not just because there are more brown faces on boards and in staff, but because their myriad engagements with nature are equally valued and represented. In the urban context, this would enable a proliferation of the kinds of nature involvement, rather than expecting all groups to subscribe to the same ideal.

### **Towards a rhizomic environmental education**

In their study of the development of a place-based school curriculum in Vermont, Kiefer & Kemple argue that “the way we learn about the world both reflects and recreates the world” (1999, 28). That is, as long as educators continue to teach in the same, siloed, disjointed manner with a focus on efficiency and performance, they will never produce the kind of inclusive and local, yet factual, teaching they aspire to. Further, it will limit a teacher’s ability to cultivate nature narratives with meaning for non-dominant participants. To solve this problem in the context of environmental education, it is important to shift from one-off nature outings or independent science-based units on environmental themes to move towards a fundamental redesign of environmental learning. As Bowers (1993, 1) argues, “if the thinking that guides educational reform does not take account of how the cultural beliefs and practices passed on through schooling relate to the deepening ecological crisis, then these efforts may actually strengthen the cultural orientation” that has led to these ecological crises in the first place.

While environmental frameworks are fundamental to the redesign of environmental education, the process of schooling and learning itself must also be reconsidered. As Stevenson argues, a “rhetoric-reality gap” exists between the problem-solving philosophy of environmentalism, and the acquisition of nature knowledge in schools (2007, 139). Referencing educator John Dewey,

Stevenson argues that schools were designed to “present basic information, to enable the practice of routine skills, and to maintain existing social conditions,” and continue to serve this role today (Stevenson 2007, 144). The existing social norms include individualism, competition, achievement and independence, values which schools seek to instill in their students (Beck 1992; Wals 2007). These norms are echoed in environmental education program narratives that make individual children responsible for the damage that has and continues to be done to the environment, and for rectifying that damage. For example, every tour I attended impressed upon students how their “Cheetos bag you throw on the ground can end up in the ocean” (fieldnotes). Instead of collective communal action in the service of ecological integrity and social justice (Chawla and Cushing 2007), programs reproduce the “liberal, capitalist notion of a community of free or autonomous individuals without collective responsibility” embedded in public schools (Stevenson 2007, 145).

Anthropologist Arjun Appadurai argues that representational politics in the classroom is insufficient for effective reform at the nexus of race and education, suggesting that these representational approaches that separate knowledge and epistemology from culture and politics. I echo his approach, arguing for the “conjoining of discourses...in the founding of a new multidisciplinary approach to curriculum reform,” situating these problematics within a context of globalization and neoliberalism (Said quoted in McCarthy et al. 2005, xxvi). That is, the integration of difference (experience, culture, worldview) cannot be accomplished in existing disciplinary modes of education by simply adding content. Thus, educators should both attend to systemic processes that reinforce difference while also situating that difference within local community contexts.

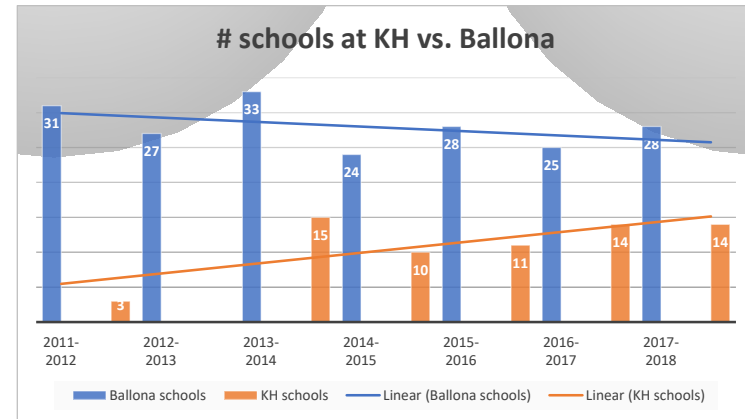
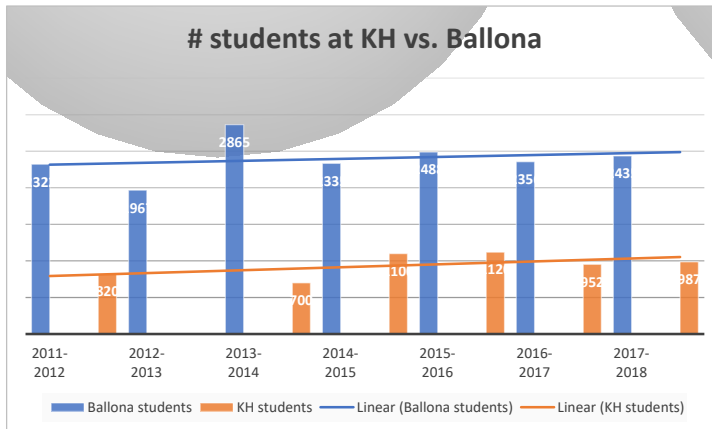
It is equally important to note the ways in which settler colonial wilderness ideologies and related values are fore-fronted as an ideal way by which city-dwellers can and should access nature and wildlife. The sites of learning often reflect a settler colonial value of wilderness as unpopulated, vast landscapes that are ultimately unknowable (see Lannoy 2012). Learners are taught the value of native plants and shown how to restore a landscape to a pre-colonial time. Wilderness is considered to hold more value than the nature in one's backyard, and still more than the urban natures of sidewalk weeds and swallows nesting in apartment chimneys. Such practices privilege a view of "real" nature as an unknowable sublime landscape that humans in our carelessness and violence should avoid approaching too deeply lest we ruin it. Through this approach and "leave no trace" mantras, people become dissociated from nature, observing from a distance without fully engaging. I argue that these kinds of restraints on fuller engagement hinder a deeper understanding of and relationship with nature.

Though indigenous participants in these programs are rare, the nature narratives that accompany science learning often frame indigenous existence as historical artifact and environmental knowledge rather than living culture. Further, fully incorporating the local histories (Tongva sovereignty, Spanish ranchers, colonization and urban development, contemporary social differences in urban experience) and attendant power dynamics of the landscapes that host outdoor environmental education programs opens the door for the diversification of lived experience in relation to environmental education. By integrating emplaced experience, social justice, and diverse epistemologies environmental education programs can more successfully work toward the common good, cultivating the next generation of tree-huggers, environmental

activists, and nature stewards that represent the full diversity of history, experience, and values of the human experience.

APPENDIX A: LAAS PROGRAM STATISTICS 2011-2018

	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018	
	Ballona KH		Ballona KH		Ballona KH		Ballona KH		Ballona KH		Ballona KH		Ballona KH	
# schools	31	3	27	--	33	15	24	10	28	11	25	14	28	14
# tour-days	46	7	41	--	56	11	41	17	46	17	42	17	49	20
# students	2322	820	1967	--	2865	700	2335	1100	2488	1120	2356	952	2435	987
# docents	--	--	--	--	35	--	--	--	40	14	--	--	40	14
# bus scholarship	12	--	17	--	21	--	16	10	21	--	18	--	--	--
% Title I	90	100	--	--	--	--	--	100	--	--	--	--	--	--



## APPENDIX B: STUDENT SURVEYS\_ LAAS BALLONA WETLANDS TOURS

### Student Surveys\_Ballona Tours

Code	Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature
RV1	4	I did enjoy the tour because you got to learn about the environment that you were in and it was very fun at the same time	I learned that some of the animals are too cold to come out sometimes, and that some of the plants do not belong there and get thrown on the floor again	4: mexico, hiking, desert, arizona	yes because it provides three very important things for animals to live called food, water, and shelter	that people would stop polluting and if you want to help to pick up your trash
RV2	4	yes because we got to see birds	what new things I learned was that wildlife animals that they make their own houses and they hunt for food	10 times; when I go outside I see birds, and dogs	yes, because if there is no nature we won't have food	what will I change is that I will not let deers be nature
RV3	4	I enjoyed it because I learned many things	that brown ducks are girls and boy ducks are green and many more	wetlands/outside / pony ride/ indoor jungle and more	it helps us breathe	bad weeds growing
RV4	4	I enjoyed the tour because I got to see animals that I had never seen or heard about	one thing I learned is that the ballona wetlands is an ecological reserve	places where you can see nature is the ballona wetlands, and the star eco station	nature is important because trees, water, and sunshine are all part of nature and we need them to survive	one thing I would change is not to rip out plants that are native to the area and to rip out non-native plants
RV5	4	yes, because we saw lots of animals	I learned how califonia horn snail sucks up bacteria	yes when I went to the park I saw a bird	yes because nature is plants gives out oxygen	I would make more trees
RV6	4	yes, because it felt like I was in a wildlife learning journey	ice plants are nonnative to the wetlands	I been too a zoo 12 times and saw many plants and animals	yes, because we need nature for oxygen and to live	it will be not to cut down trees
RV7	4	yes, because we saw lots of animals	I learn how califonia horn snail sucks bacteria	yes when I went to the park I saw a bird	yes because plants give out oxygen	I would make more trees
RV8	4	yes because there was lots of birds	I learn that the wetlands are good home for nature and wildlie	I have been to the riverbank and I saw birds, the riverbank is important for the birds and other nature because it has a home and oxygn	nature is important for wildlife, animals, and it's a home	trees would stop dying and stop coming into apper because they help us breathe
RV9	4	yes, because we saw lots of birds	I learned that some birds dive into water to eat	Ive been hiking at leg lake I've been to the riverbank and saw a blue horn heron	nature is important because animals live there	
RV10	4	yes I enjoyed the tour. I enjoyed it because I learned a lot about nature and wildlife	I learned that the redtail hawk is endangered because it only lives in wetland places. I also learned that the yellow faced bumble bee has a sock on his leg to carry honey when he collects it	several times. I've been to the park, outside, hiking, field trips, camping, and adventuring	nature is important. Its important cause without plants we wont have oxygen. Without animals that are dead we wont have decomposers that make plants	there should be a place where a lot of trees, plants, animals, and insects could stay
RV11	4					
RV12	4	I did because it was fun and I learned a lot of stuff	that indians used acorns for dice, the kingfisher waits for food then swings down to get the fish	I haven't been anywhere else where wildlife is	nature is important because wildlife lives in nature	that the nature and animals wouldn't die
RV13	4	I did enjoy the tour because it was interesting	I learned that the great blue heron has blue feathers on the back	I don't know	nature is important because nature does stuff for you	less traffic in the cities
RV14	4	yes I did enjoy my tour to the wetlands because I had fun learning new things and it was fun becoming a scientist	my favorite wildlife I learned about was the yellow spider crab that sits in the blossoming of a yellow flower	I have been to places where I can see nature 5 times it is amazing to see animals that have adapatations	yes nature is important because plants, algae and trees help us breathe	to pick up trash around parks and streets. Plant trees and flowers. Make clean habitats for animals.
RV15	4	yes I enjoyed the tour because they showed us lots of animals and birds	I learned that the califonia horn snail tries to escape from the water	I have only seen nature once because my parents don't have enough time to take me	nature is important because you get to learn new animals and birds	I would change the water dirty to clean and make sure nobody throws trash in the water
RV16	4	yes because we saw new birds and plants	I learned people bring plants that don't belong in the habitat. Also green ducks turn black when they are in the shade.	2 places, one in the zoo and the other in the wetlands	yes because plants in nature give us oxygen	for people to stop littering
RV17	4	I did enjoy the tour because it was fun	I learned there was a non-native plant called ice plant	I been to the beach	we get to have fun	taking out trees
RV18	4	I did because I learned new things	about great blue heron	in 2nd grade it was a lot of animals	sometimes nature help us live	to make a habitat
RV19	4	I did enjoy the tour because we caould see everything and learn everything	I learned the wetands used to be a train station	Ive only been to one	It is very important because we would not be alive	Pick up trash and make more plants
RV20	4	No because I got some sand in my shoes and all I got to see was dead grass, plant and birds	I learned that birds like to be social	Never I don't get out that much	Nature is important because leaves give us oxygen to breathe	
RV21	4	Yes I enjoyed my our because I love nature and helping	I learned that nature has so many plans and animals. The wildlife has animals that can do so many things.	I hae been on a trail that has all kinds of animals and plans that is full of nature.	Nature is important because we need trees for wood, animals for food and some plants to eat	What I would hange is people who throw trash anywhere in nature they should pay for it
RV22	4	Yes I did because I got to see a lot of birds	that there are many nice animals in the world	no I have never been to the places before. You can see nature at a zoo.	yes nature is important because nature provides food for us.	To stop get pick ant?
RV2-1	5	yes because of the beautiful plants and animals	that it's a place where wildlife can live and not be hunted and where lots of plants can grow	when we went to a national park and got to see all these birds flying and lots of little creatures enjoying nature	yes because its where plants grow which provides us oxygen and where animals live so they can give us meat	it would be if there was ever a tree that somebody didn't want don't tear it down and to not kill little creatures you might see or be scared of
RV2-2	5	I did enjoy the tour because I like nature	I learn many new especially about the bird life	a lot for examples: the beach, mountains	yes its important because people like nature and we protect	I would change about the wild animals because I saw on the news the 5:00 and I saw a leopard
RV2-3	5	I enjoyed the trip because I learned new facts about resources	that theres many resources and many things out there to learn about	ive been to the zoo many times and each time I went I saw new things and learned new things about nature	nature is important because animals help us live by many reasons	I would change the law of not letting anyone kill any kind of animal no matter what it is
RV2-4	5	yes because I got to learn different facts about nature	I learn how nature can survive in the hot conditions and how old trees and plants can grow	one time at a bike path because I saw trees, small plants, water, and wild animals	yes because it provides us with lots of things, such as trees that let us breathe	cutting down trees
RV2-5	5	yes I enjoyed the tour because I saw a lot of different animals and birds	that some were in danger like the brown pelican	one example is the park, beach, outside, those are places you can see nature	nature is important beause there will be nothing to look at and no more oxygen	killing nature and pollution

Student Surveys\_Ballona Tours

2: Docume5: Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature	
RV2-6	5	yes I enjoyed the tour because it had a lot of interesting stuff like the animals and plants	that the kingfisher has a mohawk and is good at fishing. Also there was this plant that takes water from other plants.	I seen nature at the forest, woods, and the zoo	yes, nature is important because the animals could provide food or even air	it would be to stop people throwing trash into the stormdrains or else it would kill animals from the ocean
RV2-7	5	I enjoyed it because we learned a lot about animals like birds migrate	I learned that ducks stay together sometimes	I have not seen nature at a store no fish no dogs	they are also alive so they need food and water	everyone had a pet so they get fed
RV2-8	5	yes I did because I got to help the environment. I helped by picking out pickleweed. I also enjoyed it because I got to see animals	leave plants alone. Don't destroy might be endangered. Animals are food if dead.	I've been to the zoo. I've been to big bear. I've been to sequoia.	yes, because it gives us oxygen. Good habitat for animals. Gives us food to eat.	I would put more trees and bushes. Less homes. No pollution
RV2-9	5	yes I did it was fun and interesting	banana plant, birds, animals, and plants	yes many places	yes it is important because oxygen and nature = culture	no more cats and cows
RV2-10	5	yes because we got to see the wild	that the wetlands is exactly wet with lots of water	more than 3 times these are examples: park, desert, and forest	yes because plants have CO2 (oxygen) that keeps you alive	to not go on endangered animals habitat
RV2-11	5	yes because it was fun and I get learn about the bird	we learn about bird and algae in the water	not my first time seeing nature in science opaimed I saw a lizard	its important because trees help us to live	poison ivy
RV2-12	5	I enjoyed it because I learned more about nature and about animals	I learned that there is some small animals that you need a microscope	I have been to griffith park and to the ballona wetlands. In griffith park I saw a lot of plants and flowers. At the ballona wetlands I saw different kinds of animals and plants	it's important because we need nature to survive and we need nature to plant crops	not chopping down trees on purpose
RV2-13	5	yes because I got to see new things from nature	I learned about new birds	I went 4 times ex: trail of 10 falls, silver falls state park in oregon, to the wetlands, snoqualmie falls park in washington, and big bear lake	yes because it gives us oxygen	I can change tobacco plants because they are bad for you and can cause cancer
RV2-14	5	yes because when we went to the park to eat and then play in the park	I don't remember very good	no	yes because without trees we can't breathe	less pollution and smoke
RV2-15	5	yes because I got to learn about nature and things I didn't know	I learned that if we litter we are already killing nature	I have never been to places like this	yes because without nature we won't be able to breathe (h2O)	I would put more trees on sidewalks and if I put more trees we would have fresh air and more h2O
RV2-16	5	yes because they told us about many facts and animals	predators eat a lot of prey	I have gone to the zoo, aquarium, and the museum	yes because they're part of life	I would change people killing and hurting animals
RV2-17	5	yes I did because there was a lot of different things to learn about	I learned about the wetlands and there were a lot of different plants and animals	2, the desert, and mountains	yes because trees help us breathe in air that we need	that people didn't like the smell of flowers and they were cutting them down I would make a law about it
RV2-18	5	I did enjoy the tour because I could see so many things that I didn't know about	I learned about new species and what they did and how they survived	about 3 times: the LA zoo, the aquarium, and the wetlands	yes it is important because we get our resources from nature	for people not to destroy nature for cities
RV2-19	5	yes I did because I learned new things	I learned what different birds eat	only in mexico because I saw a place almost like a jungle	nature is important because it relaxes you	I will change for people to make homes for animals instead of killing them
RV2-20	5	yes because I got the opportunity to see new thigns in nature	that animals and plants need to be treated as good as humans because plants and animals are very useful to humans	I have been six places and those are observatory, eaton canyon, georgia, arizona, utah, and texas	yes it is important because we need plants and trees to breath oxygen and co2 and breath out co2 for the plants to survive	that people would not be able to rip plants unless they ask for permission
RV2-21	5	yes I did because I learned a lot from it	I learned that you should preserve nature and not build land on it and make wildlife go to a unnatural location	many times. I have been to mammoth, hiking, park, mountain high	yes because without nature we would not survive and life as we know it would die out	I would want there to be more nature in the cities
RV2-22	5	I enjoyed the ballona wetlands because I liked seeing the birds and the scientific creatures	I learned that all sorts of animals come to the wetlands to eat and spend time	I have been to see nature 4 times. I went to the zoo three times and the ballona wetlands once.	nature is important because we get food and trees to breathe and eat	if there was one thing I can change in cities about nature is that I would add more trees
RV2-23	5	I enjoyed it because I saw new birds that I didn't know that existed	I learned how fish get fish	once when I went to wilderness park	nature is important because it helps us balance life	I would change that if you catch a bird or animal you can keep and let it go after a while
RV2-24	5	yeah because it showed us how wildlife in the wetlands is like and we got to learn new things that we had no idea about	I learned the famous wetland creature the heron bird living by the marsh and algae a plant that helps animals live	twice, I went to the zoo and saw marshes and a grassland area. In addition, I went to the wetland [obviously]	nature is important because it gives us natural resources like gold in which we can make it into something useful like a fry pan	I would change the lack of going into a place where a jaguar lived and just start a business destroying the jaugars habitat
RV2-25	5	ye because we could see the animals	the animals need the water to be clean so they can live in it	yes: aquarium, zoo, farm	yes because it gives us products to survive	cut less trees
RV2-26	5	yes I enjoyed the tour because I got to learn about new things	not to kill insects because we need them	I have only been to two places one at the ballona wetlands and the zoo	yes because then we wouldn't have no grass or anything	I wouldn't really change anything because I wouldn't know what to change
RV2-27	5	yes because I liked all the different kinds of animals and I love nature	I learned that we don't have a lot of places for our cool birds	I went to places with nature around 8 times in the zoo and to a nature park and to a park	nature is super important without nature we wouldn't be alive because of the plants	I would give lots of tickets to people who litter
RV2-28	5	yes I enjoyed the tour because I got to see a lot of nice animals	I learned many new thigns about nature. For example, I learned that a lot of the wetlands re being destroyed and that they need to be saved or all wildlife that lives there will not have a home	I've been to about 3 places where I can see nature. For example, the wetlands, big bear, and deserts in arizona	yes, nature is important because if we don't have trees how would we have oxygen. The trees are important because they go through a process called photosynthesis which creates oxygen. Also if we don't have birds the sky will just have clouds and won't look as nice as if it had birds flying around.	if I could change something in nature it would be to cut down a less amount of trees
RV2-29	5	no because we didn't see that much	I learned lots about birds and plants	I go camping I see blueberries plants and trees to climb and lots of birds	yes because things can live and grow	I would change the little amount of nature and make it bigger

**Student Surveys\_Ballona Tours**

2: Docume	5: Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature
RV2-30	5	yes because I got to see many animals that live there	that the ballona wetlands have many interesting animals that could only be found there	I have been to places where you can see nature like idyllwild, eaton canyon falls, and ballona wetlands	yes because it has trees which are important to people	it would be no pollution to the sky because its what we need to survive
RV2-31	5	yes cause I like nature	that the ballona wetlands is endangered	once, the ballona wetlands	yes cause you got paper from trees	to cut down less trees
RV2-32	5	yes I liked to see the animals and birds with different kinds of plants	that when you build cities (towns) you take up our wildlife and animals habitats	I've been to places with nature about 3 times: ballona wetlands, woods, desert	yes, It gives oxygen, food, animal habitat, wood for houses, animal food, and pencils	for there to be more nature and wildlife
RV2-33	5	I enjoyed the tour because I learned many things	I learned that we need to take care of our wildfie	in my backyard because my tree grows acorns and it draws lots of animals	nature is important because we get our resources there like water	I would change the park because we would have more animal habitats
RV2-34	5	I did enjoy the tour because to see the beautiful plants and animals	I learned that we should be more careful with wildlife	I been going to the walking trail close to me ever since I was a baby	I think nature is important because wildlife gives us oxygen and water	I would make more nature areas if I could because it is important and kids can come visit
RV2-35	5	yes because I saw a lot of nature	how animals adapt, and how they live in the wilderness	I have never been to a place where you could see nature	yes because nature gives us oxygen to breathe	one thing I'll change is pollution
RV2-36	5	yes I enjoyed the tour because I saw cool and fantastic birds	that pollution happens a lot and thatshow animals are endangered	I have never been in nature	yes nature is important because it helps to get co2	stop the pollution
RV2-37	5	yes because that was the most amazing field trip ever	I barely learned last year what was a heron and now I did a project report about it	I have been to the zoo I saw a lot of nature like all kinds of animals	yes because that keeps us alive without nature we wouldn't be here	I would tell people do you want to live then stop treating nature like its nothing nature helps people like us live where we live
RV2-38	5	yes I did enjoy the tour because it was cool how you got to see all of the birds and wildlife	I learned that the blue heron only comes out if it's the specific time of year	I have been to places where you can see nature many times. The zoo is one example because you can see the animals	nature is very important because plants are a part of nature. Plants give us oxygen to breathe	I would change how people treat plants. They step on them and ruin them.
RV2-39	5	yes I enjoyed the tour because I like seeing nature	most animals there are endangered	I've been to places where there is nature about 2 times. One is the zoo and the other is the wetlands	yes because we need oxygen from plants	I wouldn't change anything
RV2-40	5	yes I enjoy the trip because it is very fun exploring the nature outside	I learned that nature is endangered	I been with nature many times, like I go to the beach, mountains, and parks	yes if nature would not be here it would not let us be here	what I would change is not let anyone try to cut down trees
RV2-41	5	yes because it was very interesting	I learned that some of themcould die out fastly	I have never been to places where I could see nature	yes because it keeps us alive	one thing I would do to change nature in cities would be to keep them alive and healthy
RV2-42	5	yes I enjoyed the tour because I saw many animals.	I learned that the animals there are endangered	I've been to places where I can see nature like the zoo	yes nature is important because it helps us breathe	I would change poison ivy
RV2-43	5	I enjoyed the tour because it had a lot of nature and a lot of birds	I learned that it is good to water plants and make them healthy	I have seen nature everywhere at school parks and other places	nature is important because it gives us oxygen	I would change that there should be more
RV2-44	5	I didn't enjoy the tour it was too hot	I learned that there are many endangered birds	I have gone to places where I can see nature	nature is important it keeps us alive	I would tell the mayor to make a rule not to destroy animals and birds
RV2-45	5	I enjoyed the tour because I saw many beautiful plants and animals I never saw before	I learned that plants can be foo and can also be poisonous and animals do many things there	I have been to 2 places like the zoo and the wetlands. I got to see many really cool animals	nature is important because it has a lot of things that we rely on like food	I think it would be our water drought because I don't want to lose a precious resource
RV2-46	5	I did enjoy the tour because I saw many birds I have never seen before	I learned that most birds eat grass	I don't really go to the places that have nature there	yes it is important because sometimes humans eat plants and birds eat plants too	I wouldn't want to change anything about the nature
RV2-47	5	yes because I learned what nature is and we saw a couple of cool birds	I learned what algae looks like through a microscope	I've been to the woods when me and my cousins went camping and we saw snakes and bear	yes because we need animals wildlife and lots of people love nature	I would tell the construction workers to not cut down the trees
RV2-48	5	I enjoyed the tour because I could see all the nature up close	I learned about microorganisms and about birds	only a few times for example I've been to the zoo and parks and nature trails by my house	nature is important because we need to eat a lot of the plants and animals and the trees help us breathe	I would change the fact that a lot of people pollute our water and hurt the animals that help us
RV2-49	5	I enjoyed the tour because we got to see birds	never touch a bird	I only been to ballona wetlands	It is important because you get food water and all that	I would make all cities have nature
RV2-50	5	yes because it was fun seeing birds and animals	that birds are really interesting things	1 to seaworld it was fun I saw sharks and dolphins	yes because it helps us breathe	never to be polluting plants or seas
RV2-51	5	yes because we got to see the outdoors	we learned how the herons catch their lunch	the places where you can see nature are the park, the beach, ballona wetlands	yes because we need nature to help us breathe and also to maybe even have as pets	I would change how people pollute parks or cut down trees
RV2-52	5	I enjoyed it because I got to see lots of wild animals	I learned thatlots of cool animals live in the wetlands	only to the wetlands	it is important because we wouldn't have our food or exiniment	to not kill the nature without permission
W1	3	I did enjoy it because we got to see hawks and we took a long walk	I learned that birds can fly a lot of miles and they take breaks at Ballona wetlands	I've been to the park and saw a lot of nature	nature is important because it helps us live	I would make all of the people stop throwing trash on the ground
W2	3	yes because we got to look at birds we've never seen	I learned that if there other food dies the animals could die	to the park, woods, and inside	no because if the animals ate all there food there would be nothing for them to eat	make all cars and trucks solar powered
W3	3	no because there was sand in my shoe	I learned the california horn snail	I been to the zoo, jungle, park	without nature we wouldn't be here	I would change the crows because they eat all of our food
W4	3	yes because I learned a lot about nature	do not hurt them and they are sensitive	all around	yes because they help you	to help green schools
W5	3	yes because we saw birds, rabbits, and little animals in the ponds	that the wetlands are important for the animals	I've been to the park, school, and museums	nature is important for we can breathe	I would makethe wetlands bigger for the animals' habitats



**Student Surveys\_Ballona Tours**

2: Docume5: Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature
W6	3	yes because we saw birds like the blue heron and the meadow lark up close	I learned that the blue heron would be as tall as me if its neck was stretched	I have seen nature on all of the field trips we have done in school	yes because without nature we would all be dead
W7	3	yes I enjoyed it because we saw birds	I learned that birds are nature grass, trees, and plants	I've went to the zoo and the fields	nature is important because if theres no nature we will die
W8	3	yes because I saw birds and ice plants	I saw a new thing it is a dead bird	a zoo, a park, outside	nature is important because so plants can grow and grass grow
W9	3	yes because we get to learn new stuff and see other kinds of nature	I learn that the birds are nature plants, trees, and air	at the zoo park and other places	yes because nature is important to other people because if there is no nature we die
W10	3	yes because I saw many birdsup close that I never saw	I learned that they call the red tail hawk because the tail is red	Mexico is one because there is lots of rocks	nature is important because it gives us oxygen
W11	3	yes because it was so fun that we saw a lot of birds	I learned about the red tail hawk and a pond and plants	to the beach is a place, Mexico, and mountains	yes because if we did hid no plants or animals
W12	3	no and because my feet was hurting and I could not move my feet in the sand	I learn about nature is cool plus I saw a red halk and I never seen one in my whole life	I see a bunch of nature in school because I see lots of birds and squirrels	nature is important to us because if we did not have nature we could not breathe and play in the grass
W13	3	I liked it because I get to learn new things about birds	I learned about the ice plant that sucks up water	nature is everywhere like outside everything you see it nature like plants and the air I could tell you more but learn about nature	it is important beause our world won't look nice and clean
W14	3	yes because I learned about different plants	about the pickle weed and ice plants I never knew that those plants existed	where I live in the zoo in wetlands and hawaii	yes nature is important or elsew where would animals live
W15	3	yes because my class where sping bird	I learn about nature is everywhere in the world	In the long beach aquarium	yes, because trees, grass, everything is nature
W16	3	yes because that's all about nature and we can learn more of nature	I learned to see rabbits and lizards and a lot of different animals	I go to the park to the beach and when I go outside I can see nature	nature is important because they can be our friends and can eat some spiders that are poison
W17	3	yes because I got to see different kinds of birds	I learned that ice plants suck up the salt and wildlife birds won't come anymore	the park outside in a museum	yes it gives us oxygen
W18	3	I enjoyed the tour because we got to see a lot of birds	I learned how important the birds in the ballona wetlands are	I have seen nature in parks, beaches, and all around us	nature is important because a lot of animals live in it
W19	3	I did because saw birds rabbits and learned things	I learned about birds and rabbits and plants	I been seeing nature at parks and outside	yes because without nature we won't be alive
C1	3/4	yes because we saw some nice plants	that flowers and plants	ballona wetlands, beach	yes for animals can eat
C2	3/4	I did enjoy the tour because it was a cool tour	small animals that live on the bushes	I have been in nature 10 times; camping and hiking	because importing animals live in nature so if you kill them that's bad for us
C3	3/4	yes because I learned about new birds and biomes	that there was a snowy egret and the great	the zoo, the school, the nature place	yes because it gives us oxygen
C4	3/4	I did enjoy the tour because it was beautiful seeing all of the plants and flowers	I learned about fireflies and mosquitos	I have been in nature 10 times: exampls hiking and walking	yes it is important because nature helps us
C5	3/4	it was fun and educational	algae makes oxygen and mosquitoses larva and eggs grow under water	I don't remember any	if it wasn't protected the food chain and life cycle
C6	3/4	all amazaing things there was cool	I learned about different birds that I didn't know	no I havent been to a place like a nature before	they are a lot of important things you can learn
C7	3/4	I got to see plants and animals	new birds and plants	parks	plants and trees give oxygen
C8	3/4	I saw cool plants and animals the coolest thing I saw was the boatmen	that plants can keep the trash so it doesn't go in the ocean	palm springs almost all the hikes there bergroi springs hike to the oasis	it has animals it brings oxygen
C9	3/4	I learn lots of stuff about nature and learn special features	species can't make relationship with other species	I have been to 40 like wetlands, beaches and caves	if there was no nature we would not be on this planet because we are nature
C10	3/4	we got to see many animals and plants	I learned about animals like the blue heron and where it lives what it eats and how it lives	I have no been anywhere but the wetlands	yes because that is plant and animals
C11	3/4	I enjoyed the tour because it showed us ho important nature is to all animals	I learned that plants collect trash	many times, mountain, ballona	because animals need it
C12	3/4	yes we got to do a lot of fun things like microscopes	I learned about birds and tongva colgate and plants	a lot, my birthplace, north carolina, big bear and a lot of others	yes it is beautiful and creates CO2
C13	3/4	yes	there are new things that we could discover	I never been there before in my life	yes because you need plants for oxygen
C14	3/4	yes because I learned and loked	salt grass sucks up salt	about 30-100 camping and hiking	yes for wood
C15	3/4	yes because it was amazing and the people were nice	what wasp eggs look like	where I live, bird nests, birds, common animals	yes because without it we would not exist
C16	3/4	I enjoyed the tour because it was nature and there was birds and they explained a lot	that when birds migrate they stop at our wetlands and how so many wetlands were destroyed	israel, ballona wetlands, joshua tree	it is because animals live there
C17	3/4	I enjoyed it because it was interesting my favorite part was everything	that it is beautiful	the getty museum, ballona wetlands	it is important because animals live there
C18	3/4	I enjoyed the tour because one I saw a nest two I saw a hole and three I saw a snowy egret	a brown pelican is a plunge diver a snowy egret is a stabber and grabber and a wester gull is a gull	only once	it is a place for animals to live
C19	3/4	yes	they lived very long ago	natural history museum, park	I do not really know

**Student Surveys\_Ballona Tours**

2: Document	5: Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature
C20	3/4	yes I did because I got to see different animals and nature	that there are little animals everywhere and nature does important things	ballona wetland	yes because nature gives supplies like wood and food	by telling people to plant, make gardens, and protect nature
C21	3/4	yes because I love wildlife	I learned pickleweed	about 30; leo carillo	yes because we couldn't live without it	pay a lot of money
C22	3/4	yes because I love learning and I love love love every animal in the entire world	I learned that there were such things as great blue herons and I see them all the time	I do not know how many times I have been to nature but I have many many many times like in new zealand, beach, or hawaii	yes nature is important because it is places for animals to live	if that was my job I would tell everybody about importance of nature
C23	3/4	I enjoyed it because I saw a lot of birds	people are taking away wetlands and some bird species are extinct	hawaii, forests, canals	because it makes homes for animals	I would have a space full of nature
C24	3/4	yes because we saw more than 10 creatures and they were cool!	that wetlands recycle the water	about 5 times like the ballona wetland and the ballona creek	yes because plants give us oxygen	I would make sure that nothing would pollute it
C25	3/4	yes because looking through binoculars is fun	I learned that there were only 3 wetlands in california	823; I lived near a pond	yes you couldn't live without	I would clean up trash and recycle
C26	3/4	yes because I learned a lot about different and new things	there was lots of birds that live here and some I didn't know that lived here	ballona wetlands	it can keep us alive and animals	I would to save birds
C27	3/4	yes I enjoyed our tour it helped me to get more information about wetlands. I had a great time	I learned that the vernal pond and trees and fish, birds and all animals are important to our community. I learned about the pacific flyway too	280 I live in texas too. Near the woods and we would go on walks almost every day	we need air from trees and water to live and eat. It helps our community	I would make it beautiful with plants and pond everywhere for birds. I would get fish and keep rash out I would invite kids to come clean up to help it loo more beautifl recycle
C28	3/4	yes I got to see new experiences	I learned that the great egret has a yellow beak	10; john muir, sequoia national park	yes it helps us breathe	
C29	3/4	yes because I like nature	that snails live in algae	2 zoo	yes because animals could live	to clean up trash
C30	3/4	yes because I learned how to make sure we take good care of our planet, animals, and more	how to recycle, give the right habitat for our animals, take good care of our planet, and save more wetland areas	when I went to the Eco Station I learned about different animal habitats. When I went to the wetlands I learned about how to take care of nature	nature is important because of all the great and beautiful things we can see and the great cycles of animals and life	I would make sure everything would be working right. I'd also make sure plants would be taken care of properly and animals would be also properly taken care of
C31	3/4	no because I had a stomachache and yes because I saw the red tailed hawk	nature helps us stay alive and gives us oxygen	at my yard, it is filled with flowers, grass, humming birds, and lettuce. At ballona wetlands I saw amazing pickleweed	it gives us oxygen, health, air, food, and a good smell	I would pick up all of the trash of venice
C32	3/4	yes because it was interesting and important to me because live at the canals	I learned about brackish water, what tongva indians used there	canals, ocean, lake arrowhead	yes because it does a lot of things for everyone and everything	I'm not sure
C33	3/4	yes because I saw lizards and birds	I learned that snowy egrets are small	1. woods, 2. ponds	yes	well first I would get a friend then all the Big G and then its done
C34	3/4	yes I did because I learned a lot	I learned that a red tailed hawk is called a red tailed hawk because of its tail	no I am sorry	nature is important because we need trees to breathe. Nature gives bute to the earth	I would make sure the people that litter will not litter. I hold plant seeds so more nature would grow
C35	3/4	yes because of the wildlife	blue herons are fast	250 times	yes because it is our ?	I would make a protest
C36	3/4	yes I did enjoy the tour because I learned more things and facts about animals	I learned that the great egret only has a yellow beak	3 times or so. I went hiking. The ballona wetlands	very important. Because nature gives us supplies we need. And I love animals!	I would protest if there were a problem. I would work at the ballona wetlands
C37	3/4	yes because I learned a lot of things I did not know	I learned that if you don't plant trees and plants you will not survive an hour	the ballona wetlands is the only place I've been to	because you need trees and plants to survive to	I would plant trees and plants for people to live
C38	3/4	yes because you were so fun and you weren't grumpy you always knew what you were talking about	1. that some snails live in water 2. that when bees suck the pollen out of some plants the flowers turn orange	yes I have been to lots. In australia I drove around at sunset and saw kangaroos. And at the ballona wetlands	yes nature is important because if we did not have nature we would not be alive	well first I would get some gardens then I would have a website where people can donate money

Student Surveys\_Ballona Tours

2: Document	5: Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature
BH1	3	yes, I did enjoy the tour because I saw things that were interesting like the red tailed hawk	I learned that the blue heron is as tall as 4 feet	One the Ballona wetlands. I saw many types of birds	Yes nature is important because if there was no nature mankind wouldn't extinct	I would change the number of bird houses so there would be more place for birds
BH2	3	yes I enjoyed the tour because I learned a lot about the animals. I saw the red tailed hawk and it was so fun	I learned that ice plants came from Africa. It was a great time. Also insects didn't know what to do with the ice plant.	I been there two times. For example one place can be at the willow tree. The willow tree was very important to Native Americans. They could have hit on it	Yes it is very important because wetlands are good for animals who live in the Ballona Creek. That is very important	One thing I would change are the ice plants from Africa. I would change it because insects from CA don't know what to do with it
BH3	3	I enjoyed the tour because I got to see different birds. Also I got to see different kinds of plants. For example I saw a red tailed hawk and saw pickle weeds	I learned that ice plants hog the water. Also I learned that algae help produce oxygen.	I have been 3 places I went and saw nature. For example I want the bird watch	yes nature is important because it helps us breathe	I would want to plant more plants to keep my city a great place
BH4	3	I did enjoy the tour because I saw different kinds of animals	I learned that the snail in the water cleans up all of the germs from the water	one of the places is ballona wetlands and I saw a red-tailed hawk and also a blue heron	nature is important because if we didn't have them they would get extinct like dinosaurs	I would change the number of trees for birds so the birds can make more nests
BH5	3	the tour saw fun and I learned a lot. I learned that birds stay for ament and live there.	I learned that birds, lizards, and palms are nature	at a garden and at a birds plans and at the desert	nature is important because it helps you with a lots of stuff	I would be the people that help around the wetlands because it seems like fun and you can learn but you guys are some nice people
BH6	3	yes I did because we saw different plants and birds	ice plants steal all the water for the other plants and horn snails slurp the mud flat	2: at the baseball park and at my backyard I saw grass and a lot of birds also beautiful flowers	yes because nature keeps animals and people alive	I would change only 3 cities into a farm
BH7	3	yes I liked this tour because we walked a lot and we went to the park to play	the nature and wildlife I learned was that horn snails like to eat dead plants	I been to places where I can see nature 1 time. Examples I can give you are the garden next to our school	yes nature is important because if we didn't have trees we wouldn't have air to breathe	one thing I would change about nature in cities are to stop pulling flowers and stop stepping on plants
BH8	3	I enjoyed the tour because I seen things I havent seen before for example the california horn snail	I saw birds, plants, and turtles. For example a plant that is not supposed to be there like the pickleweed that comes from africa	r example in the woods, jungles, zoos and garden. 4 places I have been	nature is important because you have to breathe it in and out. Nature can help you live longer. Nature helps the creatures that live in it	I will give them water so they can live. I will make more plants because they are dying. I will change the soil.
BH9	3	yes I really enjoy the trip. It was really fun. I liked pulling out the plants. What I really liked was looking at all the birds	I learned about some plants suck up water and don't share with other plants. I never knew that a bird can be bigger than a person	I saw 5 places where I can see nature. We saw many different birds. We went to the creek. That was awesome	nature is important because sometimes they make people live. Nature gives us air to take in	well I would cut some bushes down
BH10	3	I enjoyed the tour because I got to learn about the ballona wetlands and go to the park	I learned that a plant with a lot of water can make a lot of plants around it die	I have been to the plant center. I was fun for example we saw flowers and soil	nature is important because trees give us oxygen and are pretty in girls' hair	I would plant more flowers to make the cities beautiful and plant fruit and regular trees
BH11	3	I did enjoy my tour because the docents showed us interesting animals	I learned that cheetahs can run over 2,000 miles an hour	I have been to places where there is nature 2 times. I have been to ballona wetlands and a museum	nature is important because some animals from nature help the environment	one thing about nature is that bees sting people that are around them
BH12	3	yes because I learned new things about nature and wildlife	I learned that there is two birds that are the tallest in the united states	I have been to one place where I have seen nature like camp when I was looking at birds	nature is important because they help trees and trees help us because trees have oxygen	would be to make 100 nature animals to be everyday
BH13	3	yes I did because I really enjoy animals	I learned that there is such thing as a california horn snail	I have been to one Kenneth Hahn	nature is important because it helps us breathe	give it some water to make them grow more

## APPENDIX C: STUDENT SURVEYS \_LAAS KENNETH HAHN WETLANDS TOURS

**Student Surveys\_Kenneth Hahn Tours**

Code	Grade	1: Enjoy the tour?	2: What new things learned about nature and wildlife?	3: How often seen nature? Examples?	4: Is nature important, why	5: How would you restore/preserve nature
LP1	3	Yes	Lizards	5	Yes, because we need animals' homes	we can help animals
LP2	3	Yes I enjoyed the trip because we played and get to draw	I saw lizards. We heard birds	3 - forest, river, and park	yes because animals need homes	we could clean up
LP3	3	I enjoyed the trip because I played	we learned about birds	I have been to the lake 1	It is good to see animals and plants	we can help animals
LP4	3	yes because animals need homes	I learn about lizards	I learn about how new buildings we see	yes because animals need homes, nature	we can help animals
LP5	3	yes I enjoyed the trip because we saw animals so close.	I learned about how new buildings get rid of animals' habitat.	10 times I seen animals at the parks.	it is good to see animals and plants	we could help animals
LP6	3	yes, because I learn about birds	I heard birds	forest	yes, because animals need homes	we could clean up
LP7	3	yes I enjoy the trip because it was fun	I saw lizards, we heard bird chirping	forest, river, park, pond, lake	yes, because animals need homes	it is good to see animals, nature is beautiful
LP8	3	yes, enjoyed the trip.	we heard beautiful birds	3 park	yes because animals need homes	nature is beautiful
LP9	3	yes I enjoyed the trip because we nature, the wildlife	we learned about a native habitat	2 lake, pond	yes, because animals need homes	we could grow plants. We could clean up, we can help animals
LP10	3	yes I enjoyed the trip because it was lots of fun	I saw lizards	1 time at a forest	yes because animals need homes	we could clean up
LP11	3	I enjoy the trip because it was stunning nature	we learned a native habitat	1 I went to a park	yes because animals need homes	we could clean up
LP12	3	I enjoyed the trip because we learned new things	we heard birds chirping. I saw lizards	1 park, river, lake, pond	yes because animals need water homes food to survive	we can help animals. We could clean up. We can grow plants.
LP13	3	yes it was fun because I drew.	I saw lizards	2 lake and forest	it is good to see animals and plants	we can help animals and we can grow plants
LP14	3	yes I enjoyed the trip because there's wild animals.	we heard birds chirping. I saw lizards	1 park	yes because animals need homes	we could clean up
LP15	3	yes I enjoyed the trip because we got to learn about birds	I learned about how new buildings get rid of animals sharts	3 forest, river, park	yes, because animal need homes. It is good to see animal and plant. We could grow plants	
LP16	3	I enjoy the trip because we got to draw some insect and color.	we heard birds chirping and lizards	4 river, park, pond, and lake	yes, because animal need homes. It is good to see animal and plant. We could grow plants	we could clean up
LP17	3	yes, I enjoyed the trip because we went to the park.	I learn about how new buildings get rid of animals' habitats	5 river, park, pond, and lake	yes, because animal need homes. It is good to see animal and plant. Nature is beautiful	we could grow plants. We could clean up, we can help animals
LP18	3	I enjoyed the trip because I had to see a lizard	I learn about how new buildings get rid of animals' habitats	2 park, pond	yes, because animal need homes. It is good to see animal and plant.	we could grow plants. We could clean up
LP19	3	yes it was fun	I saw lizards, we heard bird chirping	1 time to the pond	yes because animals need homes	we could grow plants. We could clean up
LP20	3	yes I enjoyed the trip because we got to learn about birds	we learned a native habitat	I went 2 times to the park	yes because animals need homes	we can help animals
LP21	3	yes because	it is good to see animals	0	nature is beautiful	we can help animals
WP1	6	yes because I was able to see the nature and learned many new things about it I never knew	I learned about faults and the different kinds of birds	I've been to places like camping and to parks	yes because things in nature help us live. It is what provides many objects. For example, air and oxygen.	I'd make sure no one littered in it and would provide it food and water like it does for us
WP2	6	yes I enjoyed the tour because I love to be outside and active	I learned some cactuses clone parts that fall or were cut off of them. I also learned that in the time of cowboys they would use a certain plant as cologne to make them smell nice	I have actually never been to a place where I can see nature before	yes because without nature (plants) we wouldn't have the oxygen we breathe to survive	I would put more plantlife in every block, trees, flowers and grass
WP3	6	I did enjoy the tour because I learned a lot of new things	I learned about the taco plant	I've been to one place, the KHSRA	nature is important because if we didn't have trees we couldn't breathe	I would build a unbreakable fence to prevent anyone from stepping on nature
WP4	6	yes because you get to learn a a lot of cool plants and animals	I learned that you could put on cowboy cologne	more than 10 times. I have been to a park, garden, and hiking	yes because without nature we could die	I would save energy and water
WP5	6	yes I did because we got to ee nature and not just see it from a book	I learned about the tree where in old times people used the leaves to make perfume		yes because it helps us with a lot of things like producing petroleum	it would be the pollution because that is what is making holes in the ozone which will cause the earth to be hotter
WP6	6	yes I did enjoy the tour because I was walking on a mountain that moved over 20 million years ago	I learned that if you kick a piece off cactus, the cactus could regenerate	I went to 4 places, a park, a garden, mountain, a hill	nature is important because plants have carbon dioxide and we breathe out carbon dioxide. The plants then produce oxygen so we could breathe	I would plant plants in open areas and put seeds in cracks on the sidewalk

Student Surveys\_Kenneth Hahn Tours

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WP7	6	yes because I got to learn things I have never learned of	I learned about the cowboy cologne and the taco tree	probably like 10 times: camping, park, lake and more	yes because if we had no nature we would have not interest to go outside	I would change cities to large nature parks and have tours to teach kids the same thing I learned
WP8	6	yes because it was really fun	I learned that there is a plant named cowboy cologne that people rubbed on themselves	I have never been to a place with nature, this is my first time	nature is important because it gives food to the animals to live	I would change the city a little bit the city so there would be more nature
WP9	6	I did because I had fun and learned lots of things	I learned about birds and plants such as the taco plant	this is my second time my first was a park	yes it is because without it things will disrupt	it would be people hurting nature
WP10	6	yes because it taught us about nature	they used plants as cologne and cactuses grow as 5 feet 50 years from now	2 the tour, and hiking	yes because we use it as most of our material	less pollution
WP11	6					
WP12	6					
WP13	6	yes because we learned a lot about different kinds of wildlife and nature	I learned about the cowboy cologne, men used it to smell good in places	only one places which is KH	yes nature is important because if there was no nature or wildlife we wouldn't be able to live on earth without nature	it would be flowers or roses so they can grow taller and faster
WP14	6	I did because I learn a lot of new things. And we hike a lot which is a good exercise. I had fun	I learned that some cactus could survive without water for a very long time. And they could be a habitat for some animals	I've only been once in KH, that's why I love it	nature is important because we need trees for paper and to breathe. We need soil to grow crops and other stuff	I would save more energy and more use of water
WP15	6	yes I enjoyed the tour because I got to explore the outdoors	the new things that I learned about nature and wildlife is that all wildlife needs each other to survive	I haven't really been to places where I can see nature the only time was on the field trip to KH	yes nature is important because without nature we wouldn't get to see the different types of plants and organisms	I would plant more trees keep the city clean and take care of the different wildlife
WP16	6	I enjoyed the tour because the people were kind the plants and animals were beautiful and I loved the excitement	I learned that even the smallest detail is a big thing with nature	I have not gone to any other nature places	nature is important because it gives beauty on earth and helps us survive on the planet	I would plant more trees around the places in the city and make parks with nature in them
WP17	6	yes because I get to the wonderful creatures and plants	I learned that they called the tree with sort of taco shape the taco tree	once, the park	yes because plants and trees give us carbon dioxide through the cycle called photosynthesis	I would plant trees and plants
WP18	6	yes because I got to see nature and wildlife	sand absorbs water faster than clay	at the park I have seen rabbits, squirrels and trees	yes because trees give oxygen	I would get a piece of the city, reserve it, and plant flowers, grass, and trees
WP19	6	yes it was fun	I learned about different plants and birds	the park, this field trip, and a ranch	yes it is necessary for all life	by making less factories and less pollution
WP20	6	yes I enjoyed the tour. It was extremely delightful, just learning about nature in nature not just by a textbook	I learned many things about particular creatures. For example, birds will do their nest in just about anything (when its Easter the 'wrapping' will be in some nests). I also learned that when a piece of cacti falls off it grows on its own	I have never been to places where I see nature, but in the baldwin hills	yes it is important because it helps our environment, it cleans our air and gives us plants	I would plant more streets and build more sanctuaries for the wildlife
186-1	3	I enjoyed the tour because we learned new things and we need to save nature	cowboy cologne- rub their bodies and to hide their human scent from the deer	I have been to the lake and caught a fish and look at the pretty tree and lake	because if we didn't have tree or water or plant animals will go extinct	save more water and land
186-2	3	Yes. I enjoy the tour because I got to see birds	birds build their homes to hide and protect from their nest from predators	park, lake, forest, farm, ocean, plains	it is important because the animals have a food chain	I would change that there should be less building
186-3	3	I enjoyed the tour because I saw birds and nests. I liked the plants.	cowboy cologne- rub their bodies and clothes to hide the human scent from the deer. Birds build their homes in places to hide and protect their nest from predators.	yes the rancho sierra vista mountains are nature	its important because they are losing habitats and becoming extinct	I would pick up trash
186-4	3	I enjoyed the tour because we all get to draw things	cowboy cologne- rub their bodies and clothes to hide their human sea from the deer	some have hairs to capture the moisture like frog that is in the air	hiking	native habitats; extinction
186-5	3	yes I enjoyed the tour because I even got to see hummingbirds and I got to make artwork	I learned that people took away the water and land so birds didn't get to rest often they had to fly miles to get to water lands	I been in places where nature is like 10 or more for example I been to a park close to my house. I think its called Willson Park	yes because nature helps plants grow. If nature wasn't here the whole earth will be so so ugly because flowers trees and more things are part of nature	I will say to not build more buildings and take them down and build it somewhere else where nature isnt
186-6	3	I enjoyed the tour because we got to see birds	cowboy cologne - rub their bodies to hide their human scent	4- fishing, beach	nature is important because animals need homes	native habitats; extinction
186-7	3	yes I enjoy the tour because I got to see birds, use a compass, and hike	I learned that one of the plant has cowboy cloned in it	I went walking to the beach	nature is important because they keep us alive	I would plant more trees and build less buildings
186-8	3	I enjoyed the tour because we got to learn about nature and the plants that were there	we learned how the native americans used cowboy cologne to hunt for deer	I've been to kenneth hahn park multiple times (5 or 6)	yes because some of them give us food	I would share land with nature
186-9	3	I enjoyed the tour because we saw what birds eat, we saw nests, we got to smell, see and feel plants, we got to use a compass and we got to talk about their habitats	I learned that bird nests can be made with anything but plastic. One leaf is shaped like a taco	I've been to a place with nature 7 times	yes because we need stuff to eat, animals need shelter, and birds need things to build nests	I would change the water for ducks

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186-10	3	I enjoyed the tour because we got to see a lot of birds and see animals' habitats	cowboy cologne - rub their body and clothes to hide their human scents from the deer. Some leaves have hair to capture moisture like fog	a nature park, hiking	its important because if some were about to disappear we won't have food	we will tell to stop building roads
186-11	3	I enjoyed the tour because we got to look at habitats of animals and I also got to see different birds	I learned that some people use cowboy cologne they rub it all over their bodies and clothes to hide from the deer	I have been to one place where you can see nature it is the beach. I have seen different birds like a hummingbird, yellow-rumped warbler that is all the ones I can name	nature is important because birds have a food chain	I would change nature habitat
186-12	3	yes I enjoy the tour because we got to see new birds we got to use a compass and binoculars. I liked it when we got to learn about plants	cowboy cologne - rub their bodies and clothes so they can go have dinner or hunt for food	some leaves have hairs to capture that's life fog; beach nature park desert camping mountains hiking	yes nature is important because they give us food we need animals	we should share 50% of land so animals will not die in the ocean
186-13	3	I enjoy the tour because I saw many birds and nests	I learned about cowboy cologne that indians used to rub it on its skin to smell like a cowboy cologne	beaches, nature, park, woods, mountains, forest, hiking, lake, desert	if animals disappear the food stores would disappear	we can destory some of the buildings that are not used
186-14	3	I enjoy the tour because we got to see birds	I learned that cowboy cologne - rub their bodies and to hide their human scent	some leaves have hairs to capture the moisture . Beach	yes we depend on them	grow food that birds like to eat
186-15	3	yes I enjoyed the tour because	I learned that nature is important	I see nature in my store	because it is important	clean up the nature's home
186-16	3	I enjoyed the tour because when we saw the birds that was cool	cowboy cologne - rub their bodies to hide their human scent. Birds build their own nests for they can put their eggs. Some leaves have hairs to capture the moisture like fog that is in the air. Taco tree the leaves are shaped like taco shells so it can hold water		the nature is important because we need it to survive and animals to need nature	habitat; extinction
186-17	3	I enjoyed the tour because we got to see a lot of nature. Like flowers, grass, plants and we got to draw	cowboy cologne- rub their bodies and clothes to hide the human scent from the deer. Birds build their homes in places to hide and protect their nest from predators.	beach, nature, park, mountains, camping, hiking, desert, ocean, lake	because if nature can't live then animals are going to be extinct because they have no shelter	it would be the world because people don't have homes and animals
186-18	3	I enjoy the tour because I saw many birds and I like the hill. Wetland	cowboy cologne - rub their bodies to hide their human scent. Birds build their own nests for they can put their eggs. Some leaves have hairs to capture the moisture like fog that is in the air. Taco tree the leaves are shaped like taco shells so it can ho	some have hairs to capture the moisture like frog that is in the air	because if we don't have a farm or animals	I well like to change the earth because it will be better for the environment
186-19	3	I enjoy the tour because we watched birds and hawks and I liked being outdooros	I learned that cowboys used cologne to hunt deer	some leaves have hair. "taco" tree the leaves are flexible	yes because if we lose nature we lose our fodo	native habitats; extinction
186-20	3	yes I enjoy the tour because I got to see a lot of birds	cowboy cologne- rub their bodies and clothes to hide the human scent from the deer. Birds build their homes in places to hide and protect their nest from predators.	some leaves have hair. "taco" tree the leaves are flexible	yes because you get to have life	I will change it by planting more trees
186-21	3	yes because we watching birds and we were outdooros	cowboy cologne- rub their bodies and to hide their human scent from the deer	when I went camping	nature is important because we do not want to kill animals	to give them more habitats
186PT- 1	3	yes I enjoyed our walk in my school garden. I learned more facts about the names of the birds in my community	I learned that birds eat different things and they have different beaks like the hummingbird has a long and skinny beak. And animals depend on other animals for survival	I have been to nature once	yes nature is important. We need to protect the animals who are part of the food chain	it would be the streets
186PT- 2	3	yes I enjoyed our walk in my school's garden I learned more facts about the names of the birds in my community. Now I can identify what food they eat by studying the shape of their beak. What we most learned is what we get to see is different kinds of birds	I learned that animals depend on others for survival birds eat different things and oen thing is we all get to see different kinds of birds	at my house I saw a humming bird getting nature	nature is important because animals is nature so are other plants	there is nature around the world that's why birds need nature so new trees could grow
186PT- 3	3	yes I enjoyed our walk in my school's garden I learned more facts about the names of the birds in my community. Now I can identify what food they eat by studying the shape of their beak. I was excited to use binoculars because I love using binoculars	I learned that birds eat different things and I learned that animals depend on survival.	I have seen nature in the redondo beach many times. For example I saw things like crab, fish, dolphins, and a strange animal	yes nature is important because we need to save animals that are part of the food chain or it will fall apart. Humans destroy plants. For example people waste water by the faucet while they use water. People pour poison and people block the storm drain with trash. people should not cut down plants because we will not get oxygen and we will die.	in my parl I go to there is a lot of nature but I would want to change the pond into a clean pond because it is dirty and ducks swim in the trash
186PT- 4	3	yes I enjoyed our walk in my school's garden I learned more facts about the names of the birds in my community. Now I can identify what food they eat by studying the shape of their beak. What we most learned is what we get to see is different kinds of bir	I learned that birds have different sharp claws and beaks	I went camping, to the mountains near the huge lake	yes nature is important because we need to protect the animals and trees and if cut down the trees then there will be no oxygen. If you litter then all the animals will die	I would tell my families and friends to stop littering
186PT- 5	3	yes I enjoyed our walk in my school's garden I learned more facts about the names of the birds in my community. Now I can identify what food they eat by studying the shape of their beak. What we most learned is what we get to see is different kinds of bir	I learned that animals depend on other animals for survival.	I went to the mountains at least 3 times	nature is important because we need to protect the animal food chain. Humans pollute the water by throwing trash and pouring oil	I would change the city by growing more trees and plants

Student Surveys\_Kenneth Hahn Tours

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186PT-6	3	ide... I felt adventurous about using the binoculars and compass to stroll through the garden to sneak up on the birds, but you have to be really quiet	I learned that animals depend on others for survival birds eat different things and oen thing is we all get to see different kinds of birds	I've been to Alodra park. ducks are in the lake there. I have also been to the long beach aquarium, I got to touch a baby shark and one of them is called the leopard shark	yes nature is important. We need plants and animals because trees give us oxygen to breathe. Humans create pollution. For example people waste water by leaving the faucet on. They also pour chemicals like pesticides. People clog up the storm drains with trash and it goes down to the ocean. that could kill some sea animals	I would change people littering in the streets because what if the whole city was full of trash. That would be a disaster, I wouldn't be happy about that
186PT-7	3	yes I enjoyed our walk in my school's garden I learned more facts about the names of the birds in my community. Now I can identify what food they eat by studying the shape of their beak. What we most learned is what we get to see is different kinds of bir	I learned that birds eat different things and I learned that animals depend on survival.	I've been in nature a lot of times. The time I've been in nature is a aquarium. I got to touch a sea cucumber, a sea star and a clam	yes nature is important. We need plants and animals because trees give us oxygen to breathe. Humans create pollution. For example people waste water by leaving the faucet on. They also pour chemicals like pesticides. People clog up the storm drains with trash and it goes down to the ocean. that could kill some sea animals	I would make a park and all of it would be nature. It would have plants, animals, and insects
186PT-8	3	I enjoyed our walk. Learned bird names	I learned that birds eat different things and I learned that animals depend on survival.	I been in the alondra park and we had a picnic and saw all the nature	yes nature is important. We need plants and animals because trees give us oxygen to breathe. Humans create pollution. For example people waste water by leaving the faucet on. They also pour chemicals like pesticides. People clog up the storm drains with trash and it goes down to the ocean. that could kill some sea animals	we need to clean the ocean and rivers. Plants give us oxygen. Without nature we would die
186PT-9	3	idem	idem	idem	idem	idem
186PT-10	3	idem	idem	I been at many like redondo beach, lego land, and gardena park	idem	idem
186PT-11	3	idem	idem	I been to alondra park and we had a picnic	idem	idem
186PT-12	3	idem	idem	I never been in nature	idem	we can plant more flowers and add a few more parks
186PT-13	3	idem	idem	I went to the aquarium and that was awesome and I see dolphin	idem	no because we need cities or we will not have homes and that is sad
186PT-14	3	idem	idem	I been to the mountains to go looking for snakes and swimming	idem	it would be a garden where butterflies live and fruits that grow
186PT-15	3	idem	idem	I've been to redondo beach many times, torrance park. nature is kind not all of animals are kind	idem	I will help the nature be healthy , I'll let them live in the city or town I won't let people clog the storm drain with trash, cigarettes and paper wipes
186PT-16	3	idem	idem	once, I went hiking, I saw wildlife	idem	yes I would, I will plant more trees
186PT-17	3	idem	idem	I have been to redondo beach once	idem	idem
186PT-18	3	idem	idem	I seen a lot of nature at camping	idem	will change the big bear
186PT-19	3	idem	idem	I have never been to nature	idem	I would change the water. For example people waste water by leaving the faucet on
186PT-20	3	idem	idem	I have been to redondo beach before and I saw seagulls and a seal and lots of flies	idem	I would want to change nature by giving the poor that live on the streets homes and dark aieslys
186PT-21	3	idem	idem	at redondo beach I saw a sea gull, and birds fly in the sky	idem	I ould change the nature so poor people will have homes. and food. cars
186PT-22	3	idem	idem	at griffith park ive seen racoons, squirrels, skunks	idem	idem
186PT-23	3	idem	idem	I went camping and I saw insects and a big red hawk	idem	I will tell my parents and other people to stop fooling around with nature
186PT-24	3	idem	idem	I never been in nature	idem	I can tell people to stop damaging the nature

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