

UCLA

UCLA Electronic Theses and Dissertations

Title

Critical Ecopedagogies of Love: Engaging Biocultural Diversities and Justice-Oriented Sustainabilities

Permalink

<https://escholarship.org/uc/item/47551498>

Author

Khaksar, Venoosheh

Publication Date

2020

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

**Critical Ecopedagogies of Love:
Engaging Biocultural Diversities and Justice-Oriented Sustainabilities**

A dissertation proposal submitted in partial satisfaction of the
requirements for the Doctor of Philosophy
in Education

by

Venoosheh Khaksar

2020

© Copyright by
Venoosheh Khaksar
2020

ABSTRACT OF THE DISSERTATION

Critical Ecopedagogies of Love:

Engaging Biocultural Diversities and Justice-Oriented Sustainabilities

by

Venoosheh Khaksar

Doctor of Philosophy in Education

University of California, Los Angeles, 2020

Professor Douglas Kellner, Chair

This dissertation project offers the critical ecopedagogical possibilities to confront, critique, and transform current global ecological devastations and environmental racism through reimagining and engaging deconstructed expressions of love within the academic arena and beyond. The work displays how engaged Critical Ecopedagogies of Love (CEL) are theories and practices of freedom, in opposition to global neoliberal hegemonic social, economic, political, and cultural systems that are intimately tied to ecological destruction and environmental injustice, and exceedingly impact marginalized people and individuals at the intersections of marginalization, which is disproportionately detrimental to Black and Indigenous People, and People of Color (BIPOC). It displays how addressing environmental concerns exclusively or focusing on human rights within the confines of the status quo actually neglect and even contribute to the oppressive institutional structures that are founded upon the constructs of power and hegemony, instead of dismantling the underlying and interlocking systems of domination. Integrative orientations that exist and thrive in the modern context are brought forth, including: the juncture of ethnographic and natural/environmental science research via biocultural diversity (BCD), and efforts implementing the application of these theories within justice-oriented sustainability (JS) frameworks and practices. Converging ecopedagogy within the intersections of BCD and JS articulates why and how a sound, grounded, and critical, multiperspectival eco-theory is necessary for global holistic health and wellbeing in the face of worldwide environmental destruction and dehumanization projects. The work posits engaging multi-, inter-, and transdisciplinary knowledge to deepen and expand engaged CEL that recognize the earth's entire ecology as a prerequisite for freedom. The synthesis of these fields will thus assert engaged CEL within multiple formal institutional settings, informal community spaces, and beyond, as leveraging tools that assist in developing and influencing ecopedagogical pursuits of holistic, socially-just, and liberatory transformation to take root and flourish. The dissertation of Venoosheh Khaksar is approved.

The dissertation of Venoosheh Khaksar is approved.

Paul Von Blum

Richard V. Kahn

Edith S. Omwami

Teresa L. McCarty

Douglas Kellner, Committee Chair

University of California, Los Angeles

2020

DEDICATIONS

This dissertation is dedicated to the beautiful BIPOC and intersectional BIPOC communities that recognize our value beyond the margins to which we are often ascribed, and who opt to confront, at any cost, quotidian negation of life in the struggle and sacrifice for our most basic rights to sovereignty, freedom, and dignity. It is for and with our communities who understand the complexity of our wholeness, as we critically actualize dissident and coalition futurities grounded in our desired, collective visions that remain rooted in love.

May we revitalize and reclaim deconstructed expressions of love as a way of life and witness the power of its life-affirming restoration.

TABLE OF CONTENTS

ABSTRACT	iii
DEDICATIONS	iv
TABLE OF CONTENTS	v
ACRONYM LIST	vii
ACKNOWLEDGEMENTS	ix
VITA	xii

CHAPTER 1

AN INTRODUCTION TO ECOPELAGOGY	1
Purpose Statement	7
Guiding Questions	8
Methodology	9
Significance of Topic	16
Positionality	17
Plan of work	25
Overview of Chapters	26

CHAPTER 2

FROM SCHOOLING TO LIBERATORY EDUCATION	28
Extending Freire's Critical Pedagogy	31
Ecopedagogy and Marcuse's Reschooling	35

CHAPTER 3

THE ERA OF BIOCULTURAL DIVERSITY	41
The Spring of BCD Goals, Declarations and Resolutions	47
Defining Biological, Cultural, and Linguistic Diversity	53
<i>Biological Diversity: Assessing Threats and Understanding Hotspot Conservation</i>	54
<i>Cultural Diversity: Protecting, Revitalizing, and Compensating TEK</i>	68
<i>Linguistic Diversity: From Loss to Reclamation</i>	81
BCD in the Anthropocene: Where to go from Here	99

CHAPTER 4

TOWARD CRITICAL JUSTICE-ORIENTED SUSTAINABILITIES..... 105
 From Environmentalism to Sustainability: A Global North Perspective..... 108
 A National Movement for Environmental Justice 112
 Global Anthropogenic Climate Destabilization 121
 The Ecological Impacts of Greenwashing 127
 International Sustainability Efforts 136
 BIPOC and Intersectional Vanguards: Cultivating Frameworks of Desire 143

CHAPTER 5

TOWARD CRITICAL ECOPELAGOGIES OF LOVE 153
 BIPOC and Intersectional-led Critical Ecopedagogy..... 158
 The Prospects of Ecopedagogy in a Neoliberal Academic-Industry 162
 Cultivating Love as an Act of Freedom 171
 **Biocultural Diversities and Just Sustainabilites as Critical Ecopedagogies of
 Love 179**

APPENDIX

AFTERWORD 193
ECOPEDAGOGY SYLLABUS 201
REFERENCES203

ACRONYM LIST

(BCD) Biocultural diversity
(BIPOC) Black, Indigenous, and People of Color
(CBD) Convention on Biological Diversity
(CDC) Center for Disease Control
(CEL) Critical Ecopedagogies of Love
(CERCLA) Comprehensive Environmental Response, Compensation, and Liability Act
(COEH) Center of Occupational and Environmental Health
(COP) Conference of the Parties
(CPT) Comissão Pastoral da Terra
(CRT) Critical Race Theory
(DAC) Development Assistance Committee
(DAPL) Dakota Access Pipeline
(DDT) Dichlorodiphenyltrichloroethane
(EC) European Commission
(ECOSOC) United Nations Economic and Social Council
(EGIDS) Expanded Graded Intergenerational Disruption Scale
(EJ) Environmental justice
(EPA) Environmental Protection Agency
(EU) European Union
(FPCC) First Peoples Cultural Council
(GAO) General Accounting Office *now the* Government Accountability Office
(HDR) Human Development Report
(ICCAs) Indigenous and Community Conserved Areas
(ICCT) International Council on Clean Transportation
(IDGs) International Development Goals
(IEA) International Energy Agency
(IMF) International Monetary Fund
(INDEPAZ) Institute for Development and Peace Studies
(INPE) Instituto Nacional de Pesquisas Espaciais
(IoES) Institute of Environment and Sustainability
(IPCC) Intergovernmental Panel on Climate Change
(ISE) International Society of Ethnobiology
(IUCN) International Union for the Conservation of Nature's
(JS) Justice-oriented or Just Sustainabilities
(LD&C) *Language Documentation and Conservation*
(LiS) Leaders in Sustainability
(LPR) Living Planet Report
(MAP) Master-Apprentice language learning Programs
(MDGs) Millennium Development Goals
(MIT) Massachusetts Institute of Technology
(MNCs) Multinational Corporations
(NCA) *National Climate Assessment*
(NGO) Non-Governmental Organization
(NOAA) National Oceanic and Atmospheric Administration

(NoDAPL) North Dakota Access Pipeline
(NRDC) Natural Resources Defense Council
(OECD) Organisation for Economic Co-operation and Development
(PCB) Polychlorinated biphenyl
(PFI) Paulo Freire Institute
(PM) Particulate matter
(PPM) parts per million
(PR) Public relations
(PWI) Predominantly white institutions
(RCRA) Resource Conservation Recovery Act
(SDGs) Sustainable Development Goals
(SI) Survival International
(SSCE) Social Sciences and Comparative Education
(TEK) Traditional Ecological Knowledge
(TFRK) Traditional Forest-Related Knowledge
(TRR) Traditional resource rights
(UN) United Nations
(UNCED) UN Conference on Environment and Development
(UNCHE) UN Conference on Human Environment
(UNEP) United Nations Environment Programme
(UNESCO) United Nations Educational, Scientific and Cultural Organization's
(UNESCO-SCBD) UNESCO and CBD Secretariat
(UNFCCC) UN Framework Convention on Climate Change
(UNGA) UN General Assembly
(UNHRC) UN Human Rights Council
(UNPFII) UNs Permanent Forum on Indigenous Issues
(WHO) World Health Organization
(WMO) World Meteorological Organization
(WOC) Woman of Color
(WWF) World Wildlife Fund

ACKNOWLEDGEMENTS

The dissertation is often a process that is conducted in isolation – a reality further amplified amid our current global pandemic. However, my truth will forever be that love and those living its various expressions are my foundation. I thus impart infinite thanks to the body of people and communities I hold near and dear who invariably contributed to the successful completion of both my Ph.D. program and this dissertation.

To begin, I want to extend immense gratitude to my family for their consistent encouragement, faith, and optimism over the years. To my three parents, Firoozeh, Doug, and Farid, and to my brother, Pasha: I offer humble thanks for your persistent conviction in my work, constant affirmations, and endless support. A paragraph will never do, but please know that it is because of you that any of my successes are possible. You are my everything and I am forever in your debt.

I offer gracious thanks to my extended family for their continued affirmations: Puri Joon, Amu Bahman, Mercedeh, Shahin Joon, as well as Amu Nader, Negin Joon, Khaleh Parvaneh, the Kerch family, and those back in Iran rooting for me in spirit. I also want to recognize my cousin's near and far who I deeply admire, and who either encouraged me and/or provided substantial feedback on my actual work: to Sina, Parsa, Yasna, Ava, and Aria, I thank you for believing in me, providing pockets of joy, and holding it down always. To my best friend Summer, thank you for forever cheering me on, nurturing safe space, and offering tools to heal. To Tashina: I am so appreciative to have a sister in this academic journey alongside me who holds me accountable, helps me expand, and offers comfort amid the chaos. And to Susie, Kymmy, Ali, and Mitra: thank you for your presence, your spiritual insights, your friendship, and belief. I love all of you more than words can relay.

It is important I acknowledge my time at San Diego State University, which was formative in burgeoning my sociological imagination and introducing me to a host of foundational theorists, activists, and scholars who transformed and deeply informed my growing critical consciousness. Many thanks to Dr. J. M. Choi, Dr. Michael Roberts, Dr. Isidro Ortiz, and Prof. Paul Semm whose knowledge, expertise, and assistance exponentially advanced my pedagogical pursuits.

To the colleagues and friends while in graduate school who have passed on worlds of wisdom: you inspire me in realizing I am part of a collective walking this path of hope for a more just world that we critically envision together. Eternal thanks to Molly Hansen Blazek, Ly Nguyen, Daniel Dominquez Valle, Joaquín Noguera, Dr. Everest Mueller, Kareem Elzein, Dr. Michael Moses, Dr. Na'im Eggleston, Dr. Tatevik Mamikonyan, Eliza Epstein Bentley, Petey Randal, Dr. Melissa Goodnight, Dr. Jason Dorio, Dr. Christine Vega, Tiffany Ulmer, and those I may have failed to mention. Finally, big love to all the students who have shared space, dialogical exchange, and creative expression over the years.

To my beloved dissertation committee at University of California, Los Angeles, I submit everlasting gratitude for your brilliance, constructive feedback, and immeasurable mentorship throughout this process. To Dr. Douglas Kellner, thank you for the intimate exchange of your wealth of critical knowledge that you so freely share, the doors you continually open, and your relentless pursuit of assuring I excel in my academic endeavors. To Dr. Teresa McCarty, thank you for sharing necessary alter-*Native* scholarship, for teaching as an act of love, and for the invaluable wisdom you impart that transforms my work and my life. To Dr. Edith Omwami, humble thanks for allotting excess time paired with comprehensive conversations that you cultivate with ease, in turn broadening my visions about our world and thus growing my body of

work. To Dr. Richard Kahn, words cannot relay the gratitude I feel for our harmonious union, the exhaustive body of holistic counterhegemonic discourse shared in humility, and for championing total liberation politics. To Prof. Paul Von Blum, you have been a mentor, a colleague, a friend, and family – and I cannot thank you enough for your commitment to social agitation, invaluable aid, and relentless reliability throughout my time at UCLA. You all are the epitome of love in pedagogy and practice, and I am beyond thankful to traverse this path following your footsteps.

I sincerely thank Dr. Phyllis Jackson whose mind is a level of brilliance that is unmatched: your insights and critical commentary pushed me beyond my own boundaries and grew me in ways unimagined. Thank you to Dr. Rhonda Hammer, Dr. Daniel Solórzano, Dr. Dwayne Champagne, and Dr. David Shorter for your intellectual acumen, exchange of knowledge, and guidance. And a special thanks to Harmeet Singh, Chris Thomas, and Amy Gershon, who helped behind the curtains and who I have been so lucky to have aligned with in this life: your smiles and assistance were a constant breath of reprieve.

Finally, to BIPOC and BIPOC at the intersections ascribed to the margins, who have carved paths across the centuries: words will not suffice, but it is in solidarity that I press forward in the interconnections of this spiritual, intellectual, emotional, physical, mental, political, cultural, and social work. I will extend my all in order to serve the efforts due justice, as I continue to learn from and through your expert intellect, persistent struggle, the surviving, thriving, and insisting of life “in, into, and through the wake” (Sharpe, 2016), and your envisioned futurities of desire. Thank you for all you have, are, and will teach me about love in this lifetime.

VITA

EDUCATION

University of California, Los Angeles Ph.D., Education	Los Angeles, CA Ph.D. Candidate
San Diego State University M.A., Sociology	San Diego, CA Spring 2012
California State University, Northridge B.A., Journalism, Emphasis: Public Relations	Northridge, CA Spring 2007

TEACHING EXPERIENCE

Antioch University Los Angeles <i>Adjunct Faculty</i> Department: Education, Graduate Course: An Introduction to Ecoliteracy (TEP 6450)	Los Angeles, CA Spring 2020
<i>Guest Lecturer</i> Department: Education, Graduate Course: An Introduction to Ecoliteracy (TEP 6450)	Spring 2019
Occidental College <i>Guest Lecturer</i> Department: Education, Undergraduate Course: A History of Urban Schooling in the United States (EDUC 101)	Los Angeles, CA Fall 2017
<i>Guest Lecturer</i> Department: Education, Undergraduate Course: Critical Race Theory in Education (EDUC 320)	Fall 2016
University of California Los Angeles <i>Guest Lecturer</i> Department: Film, Television, and Digital Media, Graduate Course: Film and Society (FTV 219)	Los Angeles, CA Spring 2020
<i>Teaching Associate</i> African American Studies (AFAM 176) - Race, Racism, and the Law	Spring 2018
<i>Teaching Associate</i> Communication (COMM 175) - Criticism and the Public Arts	Fall 2015, 2017
<i>Teaching Assistant</i> African American Studies (AFAM 176) - Race, Racism, and the Law	Spring 2015, 2016, 2017

Teaching Associate
Communication M165 - Agitational Communication

Fall 2014, 2016

San Diego State University

Head Teaching Associate

Sociology 101 - Introduction to Sociology: The Study of Society

San Diego, CA
Fall 2011 - Spring 2012

Teaching Associate

Sociology 101 - Introduction to Sociology: The Study of Society

Spring 2010

PUBLICATIONS AND POLICY REPORTS

Choi, J. M. & Khaksar, V. (2012). Postmodernism as the Death Knell of the Market Culture. In *Filling in the Credibility Gap* (pp. 119-148). Nova Science Publishers, Hauppauge, NY.

Choi, J. M. & Khaksar, V. (2012). Globalization, the Body and the Corporate Model. In *The Symbolism of Globalization, Development, and Aging* (pp. 109-117). Springer, New York, NY.

Esbenshade, Jill and Tim Bolin, Gina Fascilla, Jesse Garber, Amy Guidry, Molly Hansen, Venoosheh Khaksar, Stephanie Laufenberg, Irene Leivas-Howard Alexa Megna, Mariko Ono, Joseph Sly, Lauren Tracey, Ashley Wardle (2011). County employees: overworked and undermined impacts of San Diego county reorganization on family resource centers. *San Diego State University Department of Sociology and Center on Policy Initiatives*. *

*Covered in UT, North County Times, The San Diego Reader, Voice of San Diego, and KPBS.

CONFERENCE PRESENTATIONS

California Sociological Association Conference

November 9, 2012

Presenter

Workshop Title: *Teaching Inequality: Overcoming Resistance and Engaging Students*

Presentation: *Critical Pedagogy: The Humanistic Approach to Engaging Students*

Youth Empowerment Summit

April 14, 2012

Panelist

Workshop Series Title: *American Schools and the Recreation of Social Inequality*

Pacific Sociological Association Conference

March 23, 2012

Discussant

Panel Title: *Toward a Post-Market Society*

SDSU Sociology Grad. Student Committee Spring Symposium

April 12, 2011

Presenter

Symposium Title: *What Does it Mean to be an Educated Person?*

Presentation: *Alta Gracia and USAS at SDSU: Progressive Student Activism*

CHAPTER 1

AN INTRODUCTION TO ECOPELAGOGY

Eco-pedagogy... has meaning as an alternative global project concerned with nature preservation (Natural Ecology) and the impact made by human societies on the natural environment (Social Ecology), [and] also as a new model for sustainable civilization from the ecological point of view (Integral Ecology), which implies making changes on economic, social, and cultural structures. Therefore, it is connected to a utopian project – one to change current human, social, and environmental relationships. Therein lies the deep meaning of eco-pedagogy...

-Angela Antunes & Moacir Gadotti, 2005

We are amid an era of global ecological crisis influenced primarily by human beings, which is threatening the very existence of multiple life forms on our planet.¹ The “Big 6” corporate agribusinesses that control the majority of the globe’s seeds, biotechnology, and toxic pesticides place our food supplies and survivability at serious risk, for example, by drastically contributing to the decline of insect populations such as bees that are necessary for pollination.² Commercial vessels that emit catastrophic levels of carbon dioxide (CO₂) in the atmosphere, which many climate scientists claim to be exceeding the safe limit, are largely responsible for inflating global warming, in turn creating a direct negative influence in the quality and potential of existence for many earthbound inhabitants.³ Our interconnected planet is literally shifting and shuddering, and Multinational Corporations (MNCs) along with supporting governments and

¹ As cited in: Brodwin, & Johnston, 2017; Hoekstra, Boucher, Ricketts, & Roberts, 2005; and Zalasiewicz, Williams, Steffen, & Crutzen, 2010.

Emphasis on “we” and “our” include *all* beings, human or otherwise, as opposed to the too oft anthropocentric misread directed solely at human-beings. That said, rather than an “all lives matter” stance, this work places emphasis on BIPOC and BIPOC at the intersections.

² For information on the Big 6 corporate agribusinesses see: PANNA, 2012; Philpott, 2016; and Sullivan, 2017. For the study on honey bee colony collapse disorder (CCD) see: Lu, Warchol, & Callahan, 2014; Ziska et al., 2016.

³ For more on CO₂ levels reaching 400 parts per million (ppm) in 2013, see: *Democracy Now!*, 2013; 2014; 2015; Hoekstra, et al., 2005.

persons are leading the proliferation of global ecological havoc (Pearce, 2009; Riley, 2017).⁴ Such anthropogenic environmental devastations vividly mutate the natural earth and non-human inhabitants (Rapport, 2006).⁵ And while these shifts on the macro level largely impact human life, at the micro level we see Black, Indigenous, and People of Color (BIPOC) continue bearing harm at disproportionate rates.⁶ Research findings continually exhibit that race rather than income is actually a more important indicator in determining exposure to environmental hazard, displaying that environmental racism perpetuates the continued war against BIPOC.⁷

The world is in ecological disarray and it is of extreme urgency to alter how we approach and interact with our earth and inhabitants, if humans, at the very least, hope to survive. One response from the field of education is critical ecopedagogy, which requires that we change our way of life, our knowledge systems, and our foundational ideologies about and orientations with our world. Through critical ecopedagogy we are propelled to critically analyze global ecological destruction, colonization, dehumanization projects, and environmental racism to engage

⁴Note that those with wealth, status, and power are predominantly responsible for exacerbating detrimental environmental shifts.

⁵The Anthropocene refers to the epoch that we are in, in which humans, but more specifically those with wealth, status, and power are the primary beings responsible for the overwhelming global ecological collapse (Zalasiewicz et al., 2010).

⁶As is becoming standard practice, I capitalize “Black,” and “Indigenous,” throughout this proposal “as part of counterhegemonic practice,” in a similar manner articulated originally by W.E.B. Du Bois (1965), Kimberlé W. Crenshaw (1988) and Cheryl Harris (1993), as cited in this footnote. The dynamics of the historicity of culture documentation will help articulate this point further, as expressed in the Positionality section (pp. 17).

Moreover, BIPOC is an emerging identifier that is increasingly being used (especially via social media) to signify Black and Indigenous People of Color *or* Black, Indigenous, and People of Color (POC), as BIPOC hold distinct histories of violence, dispossession, marginalization, and oppression. This language helps elucidate the distinctions between privilege and oppression due to the prevalence of anti-Blackness and the erasure of Black and Indigenous People both structurally and also within POC groups (Witt, 2018).

⁷As Bullard (2001) writes, “*Environmental racism refers to any policy, practice, or directive that differentially affect or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or color.*”

For more, See: Chavis & Lee, 1987; Bryant & Mohai, 1992; Bullard, 1993; Guana, 1995; Bullard & Johnson, 2000; Gruenwald, 2004; and *Democracy Now!*, 2017.

alternative ways of living with our planet and to embrace ways of knowing our world that are conscious of not only our current situation, but the prevailing outcomes of continuing forth without consideration of the inevitable consequences human actions have toward all existence on earth.

This dissertation project is thusly a response to global ecological devastations and environmental racism, and the critical ecopedagogical possibilities to confront, combat, and transform these issues through reimagining and engaging deconstructed expressions of love. I engage facets of a critical ecopedagogy throughout the dissertation via content and inclusion of multiperspectival theory, which will be discussed further in the methods section. More specifically though, this dissertation provides a critical, holistic, and engaged theory of ecopedagogy for scholars, educators, researchers, policy makers, and practitioners by:

- a) Exploring the study of Biocultural Diversity (BCD) as science and theory
- b) Examining current Justice-Oriented or “Just” Sustainabilities (JS) as practice
- c) Placing the intersections of BCD and JS within an applicable pedagogical framework and practice of Critical Ecopedagogies of Love (CEL)

To understand ecopedagogy it is useful to know how the terms “ecology” and “pedagogy” are currently understood. The scientific community describes ecology as the ways organisms interact with environments, or the relationships of organisms and their habitats (Slobodkin, 1961), and many in the field of education define pedagogy as the “science of education” (Best, 1988). Thus, at the most basic level, ecopedagogy refers to the education of the relationships between organisms and their environments. Yet what is acknowledged as a living organism is characterized by knowledge system. For example, across various scientific disciplines, an organism is considered alive on the molecular level if it “continually regenerates itself, replicates itself, and is capable of evolving,” i.e. cells, ants, birds, humans (Rasmussen et

al., 2004). In opposition to the construction, maintenance, and perpetuation of dominant western anthropocentric, hierarchical, and essentialized systems of life, certain Local and Indigenous Peoples knowledge systems recognize that humans are not the center of the universe, and that there are also souls in what the hegemonic northwest maintains as non-living entities, i.e. in natural objects and phenomena such as the sun, air, trees, mountains, and lightening (Champagne, 2006).⁸ These Local and Indigenous ontologies and epistemologies display that many beings have a soul, personality, and/or consciousness, and therefore the power to act with intention is present within and beyond human existence. Meaning, these entities are also living beings worthy of social justice, liberation, and a right to a dignified life (Kahn, 2010).⁹ Through engaged critical ecopedagogies, this merging of science, theory, and practice helps inform scholars, educators, researchers, policy makers and concerned practitioners to more fully understand, develop, and implement holistic knowledge systems that can nurture cosmic orientations to our world such as interconnectivity and mutualism.¹⁰ This becomes important when examining the grave ecological crises currently faced around our world, from insects, to humans, and air quality alike.

With these issues in mind, this dissertation will:

⁸ Note that individuals retaining a first-world lens, who attempt to define what is “alive” per dominant frameworks and systems of knowing, run the risk of anthropomorphizing, often attributing human characteristics to other-than-human beings.

⁹ I ground this dissertation in the struggle for and toward a dignified life for all, which is assuring BIPOC equity, social justice, sovereignty, and liberation, and signifying the need for all human beings and “other-than-human-persons” (Hallowell, 1960) to be recognized as deserving of a respectable life where needs are met, though even this explanation is still seemingly within the confines of the dominant system (see: Larrain, Leroy, and Nansen, 2003). In regards to human-persons then, dignity translates to the need to for all to be afforded basic universal human rights to life such as adequate food, shelter, clean drinking water, healthcare, institutional rights such as equitable educational access, ethical representation politically and culturally, including legislative accountability of individuals, entities, and institutions, as well as meeting needs such as “economic redistribution, cultural and linguistic [freedom], indigenous sovereignty...and a respect for all life,” as presented later in the dissertation (Darder in Kahn, 2010).

¹⁰ Mutualism is explained further in the next chapter (pp. 42, f.n. 38).

1. Offer an overview of the roots of global ecological devastations and environmental racism from a social science perspective building on ecopedagogical precedence
2. Summarize the influence of Freire's *conscientização* and Marcuse's *Bildung* as extensions of critical ecopedagogy
3. Comprehensively engage the current issues surrounding BCD and JS relating to threats, loss, and needs
4. Provide a holistic overview of BCD and JS as individual studies that maintain an assumption to uphold the dignity of all beings in conjunction with the critical ecopedagogy movement
5. Engage the history of the ecopedagogy movement, including the contributions, impediments, and areas for growth regarding the project thus far, focusing on a move toward BIPOC and intersectional-led critical ecopedagogy
6. Provide frameworks for deconstructed expressions of love, and articulate the intersections of BCD as JS as expressions of CEL
7. Present how CEL can be implemented as pedagogical practices within and beyond the traditional classroom

The intersections of BCD and JS assist in providing an overview of the expression of a cosmic orientation to our world that recognize all beings as coexisting in a non-oppressive, life-affirming universe of interdependent beings. Emphasis on the interrelation of BCD and JS as expressions of love provide an additional lens for CEL, which seek to offer a holistic approach to understanding the necessity of our mutually symbiotic relations. In the midst of ecological crisis, acknowledgments continue to be made that reinforce the importance of a cosmic community that relies upon one another in order to assure a dignified existence for all.¹¹ Those immersed in critical ecopedagogy, BCD, and JS are just some of the advocates at the forefront, merging theory and practice in an attempt to highlight the need for harmony, equity, and liberation for our

¹¹ As discussed in Chapter 4, Larrain, Leroy, and Nansen (2003) propose instituting a dignity baseline that converges northern and southern frameworks and “advances from the concept of minimum life [to that] of a dignified life” – e.g. beyond the attempts to simply overcome material scarcity, reducing over-consumption of elites at both ends of the poles (Larrain, 2001). As the authors write, the dignity line should be rooted in a broad definition of human rights including physical subsistence, as well as political, cultural, and social rights.

Earth and all inhabitants.

The key bodies of literature highlighting BCD, JS, and CEL cover a wide range of issues and areas of study. Agricultural Sustainability, Deep Ecology, Ethnolinguistics, Ecofeminism, Political Ecology, and Indigenous Knowledge Systems are just a few fields that give rise to the mission of ecopedagogy (Hong, Bogaert, and Min, 2014; Pretty et al., 2009). Each offers insights into the teaching of aspects of the earth's ecology, with some recognizing multi, inter, and trans-disciplinary approaches, integrative methods, and critical pedagogies, which provide more comprehensive, intersectional, and inclusive narratives. As such, this dissertation will attempt to first outline BCD and JS individually, and then offer a holistic perspective of the interconnectedness of the earth's ecology through a theoretical lens of CEL that emphasize the relationship and intersections of the aforementioned fields of study as expressions of love.

While a wide range of research providing a diversified body of literature has been conducted to address environmental issues and/or anthropocentric concerns, previous academic work has often developed a sort of identity politics that forgets a holistic ecological perspective. This tends to leave gaps in the research due to specificities that benefit only certain populations and is typically more concerned with controlling instead of coexisting alongside nature (Maffi, 2007). Rather, research solutions typically assist the populations and projects located within the study without acknowledging the impact on the surrounding environment, how to expand the research in a manner that aids a multitude of populations as opposed to a select few, and/or in line with ecopedagogy, how to influence all on a more authentically holistic/ecological level. This literature review, while providing the insights and contributions of each field in relation to ecopedagogy, will also address such gaps in the literature.

The work then, presents an engaged CEL to expand the current discourse, and

emphasizes the social, cultural, economic, and political and their intersections as intimately tied to ecological destruction and environmental racism that disproportionately expose BIPOC to greater health hazards (Bullard & Johnson, 2000; Gruenwald, 2004). Much of the work in these fields has remained disjointed, with environmentalists focusing more on the natural world than the impacts of environmental racism, for instance, or humanist efforts engaging issues that do not take overwhelming threats to global species richness and linguistic diversity into account. I posit that we coalesce environmentalism and humanism within the academic arena and beyond, through deepening and expanding an engaged CEL that recognizes the earth's entire ecology as a prerequisite for a radical cosmic transformation to take root and flourish (Kahn, 2010).

Purpose Statement

The purpose of this dissertation is to extend the work of ecopedagogy by exploring BCD and JS as expressions of love, and to place the intersections of each within a framework of CEL.¹² As such, the work will engage critical ecopedagogy via secondary data analysis and theoretical synthesis of BCD, and will illuminate history and current state of JS and ecopedagogy movements. In line with assuring no theories are confined within the boundaries of rigid definitions, facets of critical pedagogy (Freire, 2010), Critical Race Theory (CRT) in education (Solórzano, 1997), and critical race methodology in education (Solórzano & Yosso, 2002), social movement inquiry methods (McAdam, 1985), participatory inquiry paradigm (Heron & Reason, 1997), and participatory inquiry research methods (Bergold & Thomas, 2012) are considered in relation to BCD, JS, and CEL. This theoretical approach displays the breadth of the research,

¹² The concept of “love” as appearing in this dissertation differs fundamentally from popular romantic definitions of the term. As defined or developed in the body of the dissertation, love is a deconstructed knowledge system and an action, shown to add a valuable and critical dimension to contemporary liberatory pedagogical theory and practice. Frameworks of love will be presented in the final section per Fromm’s *The Art of Loving* (1956), Sandoval’s *Methodology of the Oppressed* (2000), and Solórzano’s five tenets of Critical Race Theory (CRT) in Education (1997).

ideologies, and accompanying practices in each field to provide a more holistic critical ecopedagogy. To highlight the ways in which multiple perspectives and practices emphasizing a cosmic community exist and thrive in a modern context, the following areas of focus will be brought forth: the juncture of ethnographic and natural/environmental science research via BCD via global biodiversity, hotspot conservation, the state of global linguistic diversity, and threats to BIPOC knowledge systems; and a historical timeline of JS and efforts assessing and responding to the global ecological state of sustainability via climate destabilization, the impacts of environmental racism and dehumanization projects on BIPOC and BIPOC at the intersections globally, corporate and governmental ecological responsibility, and justice-oriented efforts.¹³ Grounding ecopedagogy within the intersections of BCD and JS will help articulate a holistic overview of cosmic orientations to our world that recognize all beings as necessary to ecological wellbeing and worthy of a dignified life. The concentration of these studies will assert CEL as leveraging tools that assist in critically developing and influencing ecopedagogical pursuits of sovereignty, justice, and liberation.

Guiding Questions

How do the particular fields of BCD and JS add to the discussion of engaged critical ecopedagogies *on their own*?

How do BCD and JS at their *intersections* contribute to providing more holistic and engaged critical ecopedagogies?

In what ways do engaged critical ecologies support and propel the aims of *engaged CEL within and beyond the classroom*?

¹³ Kahn (2016) offers the term “climate destabilization” instead of global warming and climate change, as gathered from Orr’s *Down to the Wire: Confronting Climate Collapse* (2009).

Methodology

The project ventures to transcend fixed systems and essentialized ideologies through a synthesis of theories via critical discourse analysis to offer multi, inter, and transdisciplinary perspectives that highlight interconnectivity (BCD), sustenance, social justice, and dignity for all beings (JS), and the application and practice of engaged, critical, and holistic education within and beyond the classroom (CEL).¹⁴ Keeping each theory intact, the research, while attempting to not universalize, alternatively finds common threads that tie these disparate knowledge systems and practices together to display cosmic epistemologies and ontologies. In offering a multiperspectival critical approach, this dissertation contributes to a more comprehensive theory and practice of ecopedagogy frameworks to develop at multiple levels of education, with an emphasis on higher education. A number of theorists and thinkers such as bell hooks, Paulo Freire, John Trudell, Gloria Anzaldúa, Martin Buber, and Thich Nhat Hanh describe love in its many expressions. Three guiding frameworks for deconstructed love are displayed in this work via Erich Fromm, Chela Sandoval, and Daniel Solórzano. Fromm (1956) discusses love as an action and theory in practice, writing “Beyond the element of giving, the active character of love becomes evident in the fact that it always implies certain basic elements, common to all forms of love. These are *care, responsibility, respect, and knowledge.*”¹⁵ Sandoval (2000) offers ten forms and contents for “a hermeneutics of love in a postmodern world.” And finally, Solórzano’s (1997) five tenets of CRT in education provide a tool for counterhegemonic theory, methodology, pedagogy, and practice grounded in BIPOC experiences and knowledge systems that work toward social justice.

¹⁴ The term “transdisciplinary” indicates conversations between and across disciplines, and for the purposes of this dissertation, would preferably include various dialogical exchanges and interviews with scholars in addition to a critical discourse analysis of texts to develop more holistic understandings of topics, in this case regarding love.

¹⁵ For further discussion on these four elements, please refer to Chapter 5 (pp. 177).

For the purpose of this dissertation, multitude of expressions of love are utilized beyond a limited scope, such as scientific understandings of the state of our interconnected world (BCD), critical and informed ideological frameworks implemented via practical applications (JS), and holistically engaged critical education (CEL). In this way, love can be described as that which is concerned with the life, growth, and dignity of all beings, BIPOC and community-centered in opposition to any forms of exploitation, and as interested in an interconnected self in relation. Love is thus active, love is life-affirming, and it is engaged in all facets of life. Moreover, love exists, can be nurtured, and flourishes in many forms such as recognized in the natural world via empiricism, theory, and practical application.¹⁶ This in mind, expressions of love by way of BCD and JS will assist in extending the work of ecopedagogy through an engaged critical ecological practice in pursuit of providing paradigm shifts toward understanding and practicing CEL more fully within and beyond the classroom.

The work endeavors to contribute a holistic lens of our ecology in presenting historical overviews of the fields of BCD, JS, and CEL alongside its modern implications. The methods include theoretical critique by way of extensive review of the scholarship, historical comparative, and secondary data analysis. Theoretical synthesis of each field is engaged to offer historical and present-day contexts, and qualitative and secondary data collection and analysis illuminates aspects that advance toward more comprehensive critical ecopedagogical frameworks. The content within the dissertation is mindful and inclusive of the multiperspectival theories of Freire's critical pedagogy (2010), Solórzano's CRT and methodology in education (1997), and are paired with aspects of McAdam's social movement inquiry methods (1985), Heron and

¹⁶Note that by this same token, even a theory, ethic, or practice of love can be manipulated, limited, and conditional. Thus, without an evolving framework such as Fromm's, love can be ecologically detrimental, since so much is too oft appropriated for gains in wealth, status, and/or power (i.e. neoliberalism and capitalism in original, more democratic conceptions, compared to the eventual applications as exploitative and oppressive).

Reason's participatory inquiry paradigm (1995) and Bergold and Thomas's participatory research methods (2012). The synthesis of the aforementioned fields of study exhibit the need for collaborative, integrated multi, inter, and transdisciplinary standpoints in order to address the multitude of voices, often in opposition and/or in conjunction with one another. This multiperspectival theoretical approach displays the breadth of the research, ideologies, and accompanying applications in each field to provide a more holistic ecopedagogy that fosters critical discourse and practice within and beyond academia.

After chronicling the studies, an engaged critical ecopedagogy of love are expressed within the intersections of BCD and JS to assist in providing a holistic overview of a cosmic orientation to our world, which recognizes all beings as both deserving of a dignified life and necessary for existence. This dissertation, then, aims to provide a critical synthesis of subject matter that has been made accessible through inclusion of scientific data, marginalized theories and BIPOC Knowledge Systems, and critically engaged projects via BCD and JS to support liberatory pedagogy and practice. It attempts to expand the current works and offer additional lenses to continually reflect on practices, engage critique, and actualize engaged CEL through delving into qualitative inquiry, secondary data collection and analysis, and past and present projects alongside future hopes.

Although primarily grounded in a range of critical theories ranging from such philosophers, scholars, and pedagogues as Karl Marx, Buber, Herbert Marcuse, Freire, John Trudell, hooks, Arne Næss, Sandy Grande, Derrick Bell, Patricia Hill Collins, Kimberlé Crenshaw, Robert D. Bullard, Julian Agyeman, Douglas Kellner, and Richard Kahn, a plurality of theories will be infused, at their intersections at times, as a means to continually spotlight problems and alternatives for the purpose of working toward efforts rooted in equity, freedom,

justice toward dignity. The following offer a sort of trajectory of the social critiques, theories of justice and liberation, and insights of multiple expressions of love that will be infused throughout this dissertation: Marx's critique of capitalism and propositions to move toward humanism; Marcuse's more holistic exposure of injustice, his glimpse into environmental concerns, and his hope via academia and the student; Freire's direct analysis of schooling and intentional commitment to freedom through pedagogy; and hooks' infusion of love as social justice by way of education.¹⁷ Of extreme importance, then, is defining the way that theory is strategically employed as an instrument to critique, understand, and respond to society. As Douglas Kellner describes:

“Theories” are among other things, ways of seeing, optics; they are perspectives which illuminate specific phenomena and that also have certain blindspots and limitations which restrict their focus. The term “theory” derives from the Greek root *theoria* that privileges seeing, and thus one function of theory is to help individuals see and interpret phenomena and events. Theories are thus ways of seeing that provide understanding and modes of interpretation... [They] illuminate social realities and help individuals to make sense of their world. (Kellner, 1995)

Theory is therefore implemented as a vehicle that allows us to dissect and diagnose issues as well as address, develop, and employ approaches that offer a more equitable, liberatory, and just society. Through an ever-evolving process, by way of analysis of the status quo we are able to continually unearth what is and is not working toward expressions of love, to then develop and implement both theory and practice together in realizing an all-inclusive liberatory project, and thus assure *all* are afforded the opportunity to live a dignified life.

Moreover, in a similar manner as Kellner suggests a diversified cultural studies approach necessarily combines a multiplicity of theories, this research plans to offer “critical, multicultural, and multiperspectival” knowledge systems (Kellner, 1995). This more holistic

¹⁷ The use of justice in this dissertation converges legal and moral terms. The term justice is thus grounded in retributive and distributive principles and refers to economic and social justice, as well as forms of reparative justice.

synthesis advances a liberatory theory and practice through detailing engaged CEL. Understood on its own, “[c]ritical theory points to aspects of society and culture that should be challenged and changed, and thus attempts to inform and inspire political practice,” and can be viewed as proposed ideology (Kellner, 1995). Similarly, engaged theory is referred to as “theory intended to support social change directly or indirectly,” and is often understood as directly connected with critical praxis. As an extension of both, engaged critical theory transcends development that takes place either solely on the theoretical plane or through uncritical application by assisting in materializing projects to provide pathways for freedom to be actualized and practiced. Therefore, while extremely necessary, an engaged critical ecopedagogy is not simply critical for the sake of diagnosing the complexities of social conditions. Rather, it attempts to further utilize theory to influence social change through direct application on a holistic level. Because ecology presupposes an ecological orientation to our world that is inclusive of all beings, human or otherwise, an engaged critical ecopedagogy seeks alternative approaches in working toward an all-encompassing socially-just and liberatory societal transformation through perpetual analysis, critique, and dialogical exchange, and is paired with an involved, committed, and active participation and practice. Beyond critique, it endeavors to provide and implement practical approaches that offer equity, freedom, and justice to afford all beings the opportunity to live a dignified life. Further, if infused through education within the classroom and beyond, engaged CEL hold vast potentials to inevitably emerge as another vehicle for emancipatory change. Fostering pedagogies that nourish, nurture, and bring forth critical human agency paired with liberatory action thus creates spaces for social equity, freedom, and justice to be actualized.

Therefore, through analysis of writings of theorists from each field of focus – BCD and JS alongside CEL – this dissertation endeavors to honor differences and gather commonalities

for the purposes of highlighting cosmic orientations as necessary in working toward a liberatory project. Theories of each study will be addressed individually and at their intersections so as to influence more holistic critical ecopedagogy efforts and associated BIPOC visions of realizing equity, justice, and freedom. By exploring different means to implement engaged critical ecopedagogies to offer a more inclusive lens, this work ventures to include a multitude of theories via a transdisciplinary, critical, and multiperspectival approach. In pursuit of working toward freedom and justice for those most marginalized first, and *all beings* generally speaking, it seeks the testimonies of persons who are regularly forgotten or altogether removed from the dominant discourse and often left to fend for themselves amid a status quo that benefits a few at the expense of the marginalized, disenfranchised, and oppressed. And in order to provide all beings an opportunity to live a dignified life, a more expansive range of BIPOC and intersectional BIPOC narratives must thus be included in engaging this dialogue so that lives of those most marginalized, human or otherwise, are valued and their rights to dignity are assured.

All the material gathered for the dissertation will thus come from a multitude of written works from each area of focus. And in order to fall in line with a more collaborative, transdisciplinary approach in line with the mission of ecopedagogy, I hoped to pair a synthesis of theories via a critical discourse analysis gathered from existing texts alongside 30-minute to one-hour Skype interviews from a single theorist from each field of study so as to gather firsthand insight of the current scholars immersed in the knowledge systems and ways of life discussed. The limitations in these interviews were the potential biases that may emerge since these individuals are tied to and considered experts in their respective disciplines. Nonetheless, critiques of their work and associated ideologies were to be addressed in the interview alongside additional outside research to address such. That said, the only interview conducted was with Dr.

Julian Agyeman pertaining to his development of JS. Although the conversation informed the work, it is not included in this dissertation due to time constraints.

Only through a mutual respect and dialogue, which truly attempts to find common ground and that considers all beings as worthy of a dignified life, can change be enacted that transforms the current injustices to create a more equitable, just, and democratic world. And only through deconstructed expressions of love are we able to allow this to become a realized way of life – a new way of orienting ourselves to our world. And all is possible as we co-create a non-universalized, non-oppressive, ever-evolving framework that is able to ground its theory in attempting to assure all beings a dignified life that values their worth by offering such necessities as “economic redistribution, cultural and linguistic [freedom, I]ndigenous sovereignty, universal human rights, and a respect for all life” (Darder in Kahn, 2010).

As Freire expressed, even well-intentioned efforts often lead to new forms of oppression and domination rather than liberation. Thus, it is crucial to continually engage in critical dialogue and evolving processes of examination to avoid meta-narratives that suggest limited, narrow, or fixed ecopedagogical frameworks or practices, because engaging in such is not reflective of the ever-evolving understanding of a world that is shifting continually. Rather, as long as ecopedagogy projects are not critical and adhere to strict guidelines that reinforce the status quo by reproducing oppressive, inequitable, un-free, or unjust outcomes in general, it is not reflective of the overarching ecopedagogical missions of equity, liberation, and social justice. Moreover, if all beings are valued and recognized as deserving of dignified life, then it is a given that CEL will undoubtedly look different based on time or space, and this only becomes clear as we continually engage in dialogue that includes all persons but especially BIPOC and BIPOC at the intersections of marginalization. To that end, I opt to not over-qualify efforts, even my own,

which may keep them in a fixed or oppressive space – meaning, all should be open to perpetual critique. As such, this project hopes to create an ever-evolving, continual dialogue in working toward CEL in the classroom and beyond.

Significance of Topic

This dissertation attempts to offer a holistic perspective of the interconnectedness of the Earth's ecology through a theoretical lens of CEL, by emphasizing and critically examining the relationships between the science, theory, and practice of BCD and JS. By fostering, nurturing, and practicing an eco-consciousness developed through informed critical ecopedagogies, we can address how best to transform the detrimental attacks against the environment and its inhabitants to offer all beings within the cosmic community the opportunity to live a dignified life in harmony, equity, and reciprocity. By illuminating BCD and JS, we can delve into the contributions of each to the field of ecopedagogy. Moreover, the conversation between the intersections provide an inclusionary multi, inter, and transdisciplinary ecopedagogy that presents a more all-encompassing critical approach. Thus, the intersections of BCD and JS assist in providing an overview of the expression of a cosmic orientation to our world that recognizes a non-hierarchical, non-dualistic universe of non-essentialized interdependent beings. Furthermore, emphasis on the interrelation of BCD and JS provides an additional lens for CEL, which seeks to offer a holistic approach to understanding the necessity of our mutually symbiotic relations by way of engaged critical ecopedagogies. This becomes equally significant considering the pursuit of the field itself is to discuss holism, interconnectivity, mutualism and so forth. Thus, the more socially-just, expansive, and inclusive ecopedagogy becomes, the more reflective and capable it is of fulfilling its own purpose and message of cosmic coexistence and assuring dignity for those at the margins.

Positionality

Engaging in theoretical synthesis and critical pedagogy research requires addressing issues of positionality to offer insight into the vantage point of this work. As an Iranian-American Woman born abroad, the people and environments that raised me largely laid the foundation for my life and inevitably shaped my experiences and encounters with my intersectional identities in a complex world. I have gathered Indigenous knowledge from my mother, western perspectives via social institutions stateside throughout my academic journey and beyond, and critical consciousness through dialogical interpersonal interactions with colleagues, peers, friends, and family, leading to my academic foci. Simply, I know our world from my many standpoints. I experienced my youth as a Woman of Color (WOC) whose family traveled across oceans in the mid-80s to leave the war-torn chaos that was once called home in hopes of a more peaceful, equitable life. That vision did not come into fruition without personal and familial struggle and an eventual understanding beyond my own experiences as a middle-class light-skin WOC with privileges due to my proximity to whiteness. The continual “conscientization” surrounding topics of global poverty, institutional racism, and injustice led to my relentless pursuit of critical education, dialogue, and socially-just transformation regarding issues of sovereignty, freedom, and dignity within and apart from my immediate settings.¹⁸

Most pronounced are my encounters with multiple expressions of love as a basis to understanding, navigating, and responding to our world. That said, the utmost significant and enduring lesson my mother relayed is that everything always returns to love – whether it is a question, a desire, a problem, or a solution, I learned the response is forever rooted in love or a lack thereof. Nonetheless, due to my personal positionality, I recognize there will inevitably be

¹⁸ Freire’s (2010) concept of “conscientization” or what he terms in Portuguese as *conscientização*, “refers to learning to perceive social, political, and economic contradictions, and to take action against the oppressive elements of reality.”

holes in this conversation around love, which can cause distress because of my attempt to gather all-encompassing and inclusionary perspectives that liberate. Knowing such reinforces the urgency to continually share and develop this work with those immersed in the struggle and hope for emancipation and dignity, so that the most comprehensive social justice can be propelled forth with holistic understandings of expressions of love as the guiding force toward both. Hence, this dissertation is informed by my experiences and encounters with marginalization, injustice, and oppression, as well as equity, liberation, and harmony. I am primarily interested in developing projects that afford all beings the opportunity to live a holistically dignified life through such works as engaged CEL, focusing my work on liberation for oppressed, dehumanized, marginalized, intersectional, and exploited beings and communities. This work is simply a manifesto acknowledging that BIPOC voices need to be the vanguard in any liberation work should we hope to actualize emancipation, sovereignty, and dignity. My dissertation is thus positioned with an intentional commitment to social justice and freedom as expressions of love.

All that said, it is through understanding the framing of dualisms that have perpetuated injustices with which this work is developed. Thus, it is helpful to articulate the historicity of culture documentation as it specifically is written in this dissertation as we delve into BCD, JS, and CEL.¹⁹ Rather, it is those with wealth, status, and power who have framed, perpetuated, and deeply embedded violent narratives across time to assure maintenance of the status quo. In this sense, it is the continuation of systemic and systematic hetero-patriarchy, white supremacy, and settler colonialism at the expense of the global majority, and the subsequent work of academic scholars, activists, and concerned patrons to continue unlearning, re-learning, critically analyzing, and working toward just and dignified futurities for those most marginalized, namely

¹⁹ Examples of such dualisms include: Black/white, evil/good, inferior/superior, poor/rich, female or non-binary/male, and uncultured/civilized, savage/human.

BIPOC and BIPOC at the intersections.²⁰

On that note, I will begin by grounding this work in historical analysis.

Early records of culture are traced back to the likes of Herodotus and other Greek conquerors around the 5th century BC. This documentation burgeoned in the Age of Exploration, beginning vigorously in the late 15th century, which incited thought about cultural differences and successively solidified ideological domination and cultural imperialism (Eriksen & Nielsen, 2017).²¹ For instance, European explorers of the circumpolar north often required the aid of Indigenous Peoples in order to survive.²² Yet, Eurocentric racist constructions of Indigenous Peoples and their environments supported self-affirming ideations that placed Euro-American culture “at the pinnacle of civilization,” with the land and its Peoples’ “[regarded as a frontier for resource exploitation rather than a homeland]” (Kassam, 2009).

As Eriksen & Nielson (2017) explain, many of “the early travelogues from the New World were full of factual errors and saturated with Christian piety and cultural prejudices.” Prior to René Descartes’ philosophy of dualisms, the deliberate social construction, representation, and normalization of the racist Black/white binary significantly and decisively provided European settler colonists the vindicating rationale they needed to pursue the

²⁰ I use the term “white supremacy” per Harris (1993), who pulls from Frances Lee Ansley’s (1990) definition: “By “white supremacy” I do not mean to allude only to the self-conscious racism of white supremacist hate groups. I refer instead to a political, economic, and cultural system in which whites overwhelming 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.”

²¹ As an example, Eriksen & Nielsen (2017) explain how Amerigo Vespucci’s distorted articulations of Native culture helped solidify the framing and elevated status of his own society: “Vespucci argues effectively for the virtues of absolutist monarchy and papal power.”

²² See Kassam (2009) for more on the circumpolar north as representing both the Arctic and sub-Arctic (i.e. Alaska, Iceland, Canada, and Russia).

transatlantic slave trade (Harris, 1993).²³ Deeply embedding this master narrative assured white supremacy across cultural, socioeconomic, political, “spatial, legal, psychic, and material” conditions, while concurrently insuring “Black exclusion from social, political and cultural belonging; [Black] abjection from the realm of the human” (Sharpe, 2016). These European settler colonists abducted, tortured, enslaved, and held Africans in captivity through the transatlantic slave trade, and their “sustained attempts to dehumanize” Black People bleeds into the present (Ani, 1997). The ongoing Maafa, in tandem with the mass genocide of Indigenous People of Turtle Island and ensuing seizure of and removal from their homeland, forcibly erased a wealth of African and First Nation culture and identity via institutionally protected and enforced violence, e.g. archives of ancestral food sources, healthcare, medicine, spirituality, and language.²⁴ In sum, colonizers, settler colonizers, and those supporting wealth, status, and power frequently explored, documented, and plundered culture, constructing racist cultural characterizations as a vehicle “to reinforce the legitimacy of the race hierarchy,” and justify

²³ As written in Harris (1993): “Racial identity was further merged with stratified social and legal status: ‘Black’ racial identity marked who was subject to enslavement; ‘white’ racial identity marked who was “free” or, at minimum, not a slave. The ideological and rhetorical move from “slave” and “free” to “Black” and “white” as polar constructs marked an important step in the social construction of race.”

²⁴ In the footnotes, Harris (1993) pulls from Takaki (1990): “describing how English definitions of [Black] and [First Nation Peoples’] as “savage” and “instinctual” “encouraged English immigrants to appropriate [First Nation] land and [B]lack labor as they settled and set up production in the [new world], and enabled white colonists to justify the actions they had committed against both peoples.”

These actions also forcibly removed home for both groups via displacement, relocation, and forced assimilation as determined by those imposing power. For Indigenous, First Nation Peoples’, there remains occupied territory formerly known as home (Tuck & Yang, 2012). For Black Peoples’ in the U.S., there was/is no home here on colonized First Nation land *or* back in Africa (Sharpe, 2016). This of course is aggravated today by gentrification efforts and continued removals.

Moreover, as Harris (1993) writes, citing Joseph William Singer in Williams (1990): “property and sovereignty in the [U.S.] have a racial basis. The land was taken by force by white people from [POC] thought by the conquerors to be racially inferior. The close relation of native peoples to the land was held to be no relation at all. To the conquerors, the land was “vacant.” Yet it required trickery and force to wrest it from its occupants. This means that the title of every single parcel of property in the [U.S.] can be traced to a system of racial violence.”

For reference, the Black Holocaust was first popularized as “Maafa” by Marimba Ani in her 1997 book, *Let the Circle Be Unbroken: The Implications of African Spirituality in the Diaspora*.

subjugation and subsequent colonial efforts (Harris, 1993).

Ruling empires and first-world nations continued this alleged documentation of culture through the Age of Enlightenment, transcending the religious and philosophical toward the academic, which eventually led to the establishment of the field of anthropology in the 19th century (di Leonardo, 2004; Eriksen & Nielson, 2017).²⁵ In one of the earliest articulations of cultural anthropology, English anthropologist Edward Burnett Tylor defined 19th century notions of high culture, purporting three hierarchal stages of societal development: savagery, barbarism, and civilization. Tylor’s widely used definition stood amongst a vast array of similar universal concepts of the time that helped secure elite rule atop “the ladder of human progress” as juxtaposed against “primitive culture” (di Leonardo, 2004; Tylor, 1920). In the late 19th century, German biologist Ernst Haeckel’s development of racial phylogenetic trees and Swiss-born scientist Louis Agassiz’ promotion of polygenism that separated races as differing species, both supported notions that white people were “far superior” to Black Peoples’, utilizing science and empiricism to back their racist claims (Delisle, 2017; Richards, 2009; *Democracy Now!* 2019).²⁶ Comparable recurring racist cultural constructs were perpetually backed through science and maintained via systemic injustice, expanding through the 20th century onward.

The white supremacist hetero-patriarchy’s historical proclivity of culture documentation has been steadfast. On the global scale, countless studies conducted via race scholars,

²⁵ Of course, the Age of Enlightenment birthed Rene Descartes’ philosophical notions of dualisms, and John Locke’s concept of the tabula rasa, which helped solidify the late 17th and 18th century status quo and contribute to what would become anthropological study. Also arising in this era was Jean-Jacques Rousseau’s ideas about freedom, democracy, and human nature (inspiring Marx’s concepts of “inequality and property, human nature and alienation”), moving from reason toward Romanticism. For more on this history of anthropology, see Eriksen & Nielsen (2017).

²⁶ Scientific remnants rooted in historical notions about the biological differences between Black and white people are still seen today in the widespread racialized disparities in the delivery of healthcare, such as racially biased pain assessment and treatment in the U.S., i.e. medical discrimination (Tait & Chinball, 2014; Hoffman, Trawalter, & Oliver, 2016).

sociologists, historians, and others, critically and poignantly articulated the ascension and perpetuation of “stigmatizing, racialized tropes of Otherness in the [west coincide] with the rise of colonialism” (di Leonardo, 2004).). As di Leonardo (2004) writes, the “romantic impulse has [repeatedly] flowered, and been...engulfed by the jaws of commerce—as in the commodification of ethnic and native arts and music, non-Western religion and medicine” (di Leonardo, 2004). This is vivid today as new markets are constantly ferreted out, with life outside of the status quo romanticized, pillaged, and sold for material use and gain.

The sociocultural, economic, and political institutionalization of white supremacy and anti-Blackness endures and justifies the “current quotidian disasters” – the “insistent Black exclusion” in the “afterlives of slavery” (Sharpe, 2016; Hartman, 2008). But contemporary colonization of culture is tantamount to its past, as is visible in the interminable historical objectification, hyper-sexualization, and dehumanization of Black identity and Black culture via the violent human trafficking and layered, savage exploitation of Saartjie Baartman: from Baartman’s shortened life of about 27 years, her body dissected by French zoologist and surgeon Georges Cuvier, her remains displayed in the Musée de l’Homme in Paris until the late 1970s (~160 years), and the denial of a proper burial until her final repatriation to South Africa almost 187 years after her death (Gordon-Chipembere, 2011). The colonization, commodification, and consumption of Black culture – of Black being – the incessant “ontological negation” as such is secured through interlocking systems of domination, which reinforce, normalize, and solidify white supremacy and anti-Blackness as global paradigm (Sharpe, 2016).²⁷

²⁷ As Sharpe (2016) writes, her book looks at the current quotidian disasters, as quoted above, “in order to ask what, if anything, survives this insistent Black exclusion, this ontological negation, and how do literature, performance, and visual culture observe and meditate this un/survival.”

See also: Forbes-Vierling, 2018; Collins, 1990; and Crenshaw, 1990.

These complex, problematic, and disturbing dynamics of culture projects extend rapidly today via neoliberal globalization efforts that expand and drain natural resources, alter physical landscapes, continue to impose “cultural assimilation and homogenization of cultural diversity,” and leave many for dead (Maffi & Woodley, 2010). And the dominant ideological framing of BIPOC and BIPOC at the intersections of marginalization via cultural imperialism endorse first-world pursuits that help maintain the hegemonic order (Key, 2012). The hegemonic global sociocultural paradigms thus enable colonizers and settler colonizers to justify the enduring centuries-old “gratuitous violence” committed against those marginalized, past and present (Wilderson, 2010).²⁸

All this in mind, any review must critically analyze how cultural research and documentation has been instrumental in violently assuring maintenance of the status quo across time and space. Especially in the current political climate, this nuanced historicity of culture studies and its critiques are monumentally important to place in relation to existing dominant narratives to weigh problems of positionality and researcher bias. The previous accounts speak directly to the issues of outsiders representing the current order – venerated outsiders who define, study, and research culture and cultural diversity, even as this documentation was and regularly continues to be biased, misinformed, inaccurate, and dishonest. Nonetheless, culture and cultural diversity can and have been critically studied and justly developed by a host of scholars, typically from the communities themselves per their own needs and metrics—although we need

²⁸ As scholars, we must also continue to engage critical discourse around culture and cultural diversity to avoid participating in trends of language that do not tackle the roots of issues. As di Leonardo (2004) writes regarding modern anthropology and cultural studies: ““Multiculturalism,” like other trendy terms--hybridity, diversity, Otherness, the colonial gaze—[can be and often] is a Disneyland-doll, Benetton-ad image, lacking connection to the political-economic grounds from which people apprehend and reproduce their worlds.”

See also: Takaki, 1990 and Harris, 1993.

to be aware of systems of power per representational politics and tokenism.²⁹

Considering the continued dehumanization and extermination of Black, First Nation, Local, Indigenous, People of Color communities, and those at the intersections, and the erasure of their cultures, associated knowledge systems, and beings, it is ethically imperative to assure their rights to a dignified life while collaboratively producing knowledge that examines the ecological consequences of the destruction of BCD. BIPOC, and BIPOC identifying at the intersections have holistically, profoundly, and brilliantly developed nuanced, dynamic works.³⁰ Their complex assessment, critique, and response to colonization and settler colonialism, the current neocolonial cultural context, and future imaginings built on historical sapience are derived from cumulative firsthand experiential knowledge, ancestral wisdom, and critically analytical foresight. It is requisite to center BIPOC, their exhaustive knowledge, and informed narratives to the forefront of the scholarship, practice, and movement if there is any hope of actual liberation. As R.L. (2013) writes, citing the works of Wilderson (2007), Sexton (2007), and Hartman (1997):

It is not necessarily one's 'whiteness' that matters inasmuch as one is *not* [B]lack enabling entrance and participation in civil society. Barred from the immanent capacities of living, anti-blackness is the necessary ground for the definition and propagation of life in general.

²⁹ As a non-white woman and ally that does not represent some of the groups discussed, I must note that BIPOC, and BIPOC at the intersections should be forefronted as vanguards of liberation work because of their firsthand knowledge and experience, and especially since the oppressor, per Freire (2001), will not and cannot free those they oppress. For a list of specific authors, see final footnote in this section.

For more, see: Hall, 1997; Strohline & Brandl, 2011; Kanter, 1977; and Gustafson, 2008.

³⁰ For example, a host of scholars, activists, philosophers, and community leaders have produced significant seminal and highly-regarded works, and should be centered as the vanguards of such liberation effort, including the following authors: LaDuke (2017), Sharpe (2016), Cabral (2016), Grande (2015), Dunbar-Ortiz (2014), Harney & Moten (2013), Tuck & Yang (2012), Wynter (2003), and Crenshaw (1990).

Note that moving forward, for the sake of saving space and refraining from redundancy, when I use the language “*those at the intersections*” or “*those at the intersections of marginalization*” I am referring to BIPOC at the intersections of marginalization, not just those occupying intersectional marginalized identities.

Thus, this dissertation is framed around the context of the protection, restoration, reclamation, compensation, and sustainability of our interconnected world as necessarily inclusive of, centered around, and led by Black People, Black Indigenous People, Indigenous People, People of Color, and BIPOC at the intersections of marginalization worldwide. Holistically, this means concerted efforts are taken to synthesize such works as BCD, JS, and CEL, and infuse transdisciplinary work in general where the voices of BIPOC and those at the intersections – voices of the most marginalized – are centered, the ancestral wisdom of the holders of Traditional Ecological Knowledge (TEK) are regarded as integral and thus adequately compensated, and BIPOC and those at the intersections of marginalization reside as the vanguards in conceptualizing and implementing plans for a thriving BCD toward ecological equilibrium, while assuring a dignified life for those most marginalized per their metrics.

Plan of Work

The plan for completion of this dissertation following my proposal defense included holistic dissertation research, as well as chapter and topic-specific research, reading, writing and editing. This afforded time for extensive critical discourse analysis, synthesis of theory, interview and theme development, consistent writing, and simultaneous work as a Teaching Associate with sections and grading throughout the spring of 2018, and as a Teaching Assistant with grading in the fall of 2018.

Fall 2018 – Spring 2019
Dissertation Research and writing: BCD
Spring 2019 – Summer 2019
Dissertation Research and writing: JS IRB (submit + exemption)
Fall 2019 – Winter 2020
Dissertation Research and writing: CEL
Dissertation Defense: Thur., March 19, 2020 (3-5pm)

Overview of Chapters

Each chapter of this dissertation essentially articulates different expressions of love. Detailing BCD and JS allow for broader definitions and expressions of love. Through critical ecopedagogies, love is able to be presented in more holistic terms. The more inclusive and dialogical the conversation, the more thorough the work is regarding CEL. Thus, it is through a commitment to educating about love as an ethical basis, guiding principle, and practice, which is to be continually deconstructed and redeveloped, that an ecopedagogy within and beyond the classroom can emerge – individually, throughout the community, and across all facets of our lives.

The **first chapter** lays the foundation of this dissertation. This chapter includes the purpose statement, guiding questions, methodology, significance of the topic, positionality, plan of work, and this overview. The **second chapter** provides an introduction about the impact of our global ecocrises on humans, other-than-human beings, and environments. The chapter emphasizes the gaps in research centered on and directed by BIPOC and BIPOC at the intersections of marginalization who confront disproportionate harm to environmental injustice. This section of the dissertation will extend Freire’s concepts of critical pedagogy and highlight the influence of Marcuse’s reschooling concept on the northwest ecopedagogy movement. The **third chapter** brings forth the discussion of BCD by highlighting the inextricable link between biological, cultural, and linguistic diversity. The rapid decline and disappearance of BCD and resolutions to protect those most under threat are offered, along with some limitations and areas for growth in the field, and new efforts arising from the emerging research. The **fourth chapter** illuminates environmentalism and sustainability efforts and highlight the advance toward an all-encompassing JS. A critical historical analysis of environmental injustice will be brought forth

through an overview of the theory of JS and its associated applicability, the influence of climate destabilization globally and its specific impact on BIPOC, and the transition from the environmental advance to a more holistic, integrated justice-oriented model. The **fifth chapter** emphasizes BIPOC and intersectional-led critical ecopedagogy, and the prospects for the movement to grow amid the neoliberal academic industry. Frameworks from three major intellectuals will provide the foundation for cultivating love as an act of freedom through CEL. The chapter will articulate and ground engaged CEL within the intersections of the aforementioned fields to offer a more holistic overview of a cosmic orientation to our world, the ties between ecopedagogy and the individual fields of BCD and JS, and will place the intersections of each field within an engaged CEL. After expressing how CEL foster a thriving and cosmic coexistence through environmental healing and justice amid the complexities of a modern era, the chapter will close by presenting comprehensively how CEL can be implemented as liberatory pedagogical practice in multiple formal institutional settings, informal community spaces, and beyond to afford all their right to a dignified life.

CHAPTER 2

FROM SCHOOLING TO LIBERATORY EDUCATION

[To] contend effectively with issues of racism, sexism, homophobia, disablism, and other forms of inequalities, a life-affirming ecological praxis is paramount...one that encompasses a refusal to adhere to political, economic, and philosophical disconnections, which falsely separate humankind from those ecological dynamics that shape local, global, regional, rural, and urban landscapes. Instead, static views of humanity and the planet, which inadvertently serve the commodifying interests of capital and its penchant to divide and conquer, are challenged and dismantled through an integral political solidarity of heart, mind, body, and spirit. Accordingly, a critical ecopedagogy must then encompass...an ethos [that] supports a world where cross-species concerns are both commonplace and valued for their creative potential in the making of a truly democratic, just, and peaceful world.

-Antonia Darder in Kahn, 2010

Our lives depend on the coexistence of *all beings* interacting in mutualistic symbiotic relationships on this planet, and that means that our anthropocentric, hierarchical, and essentialized ideologies regarding human importance in this world must be overcome so we can value the necessity of BCD and JS in sustaining the planet and affording all beings dignity. It is thus important to delve into dominant ideologies such as Euro-white supremacy, patriarchy, and imperialist-corporate capitalism that promote or reinforce oppression, inequity, and injustice, and to consider why some lives are valued over others, human or otherwise, what ways these anthropocentric, hierarchical, essentialized stances stimulate approaches to the world that inevitably kill certain beings with impunity and destroy the planet, and why these detrimental impacts and consequences are so often disregarded by the status quo and those supporting such.

With this in mind, many worthwhile environmentalist or humanist movements have arisen that embody valuable actions without actually providing a holistic understanding of the ecology of the planet. For instance, popular misconceptions of conservation, preservation, and sustainability are presented as conclusive steps in activating environmental consciousness.

Nevertheless, many of these practices are tied to the dominant western model of a

production/consumption culture, which is clearly starved for an engaged critical ecological approach. And while environmentally-conscious companies and actions exist, we need to continually ask questions to unearth the roots of larger societal problems such as: Are we living sustainability or depleting the earth's resources, polluting the planet, and creating unnecessary, harmful, and excessive waste? Are our products and food natural and organic, or genetically modified? Moreover, are we producing and consuming resources that are cruelty-free and through means of fair trade, or via some form of human, environmental, and/or ecological exploitation, violence, and degradation? Who is deciding the terms of sustainability, and are BIPOC and intersectional BIPOC centered or leading the movement? And why does knowing or responding to any of this matter for human life – especially for those at the margins – or the lives of “other-than-human-persons” (Hallowell, 1960)?³¹ With hope for a socially-just and liberatory society in mind, the answers seem abundantly clear: in order to truly heal and create life affirming, equitable, and socially-just ways of life, we need to alter approaches reflective of the status quo that simply offer certain populations and projects momentary relief and instead engage holistically inclusive, justice-oriented sustainable solutions. We must adopt ways of knowing our world that transcend western perspectives, which traditionally promote essentialist, fixed, hierarchical systems founded upon such dominant narratives associated with oppression, domination, and control. Instead, we should acknowledge the importance of harmonious coexistence as necessary to global survival.

In the face of global ecological crises, we must undertake addressing and assuring equity, liberation, and justice for *all beings*. This may seem a large feat since we have yet to even fully

³¹ Though Animism is an extremely complex knowledge system that many Western scholars have attempted and regularly failed to adequately define, the term as used today is derived from the Latin word for “soul” (*animus*), and as Snodgrass & Tiedje (2008) demonstrate, many Indigenous communities tend “to attribute souls, and thus vital-life-force, to what A.I. Hallowell (1960) refers to as “other-than-human-persons.”

embrace humanism on the local or global scale as is present in such concerns as the modern slave trade that exploits an approximated 27 million humans who are sold as commodities for trade in the marketplace (Bales, Trodd, & Williamson, 2009), and extreme wealth disparity where “just eight men own the same wealth as the 3.6 billion people who make up the poorest half of humanity” (Oxfam, 2017), and the 400 richest Americans hold more wealth than *all* 16 million African American households *and a third* or 5 million Latino American households, (Taylor, Kochhar, Fry, Velasco, & Motel, 2011). Nevertheless, we must commit to expanding and practicing equity, liberation, and social justice as expressions of love, to dismantling interlocking systems of domination, to value and center currently-removed persons, human or otherwise, and to reimagine a world rooted in mutualism, and/or at least commensalism, as we continually transform our world to assure all are afforded a life of dignity.

Therefore, a paramount focal point in suggesting and/or implementing underlying theories and practices of ecopedagogy is not solely to combat the environmental crises, but to cultivate BIPOC-led critical ecopedagogies as frameworks that attempt to foster a more all-encompassing emancipation (Kahn, 2010). Thus taking a more holistic approach toward epistemological and ontological shifts centering BIPOC “desire-based” frameworks, discourses, and projects, critical ecopedagogies attempt to move beyond environmentalism or humanism exclusively by fostering the notion of an “eco-consciousness” within and beyond the classroom (Macy, 2013).³² As the work will present, an eco-consciousness necessarily embraces, promotes,

³² The term or theory of *eco-consciousness* is presented in this dissertation to relay a *holistic* (ecological), *awareness and knowing* (consciousness) of our mutually symbiotic cosmic relations as intimately requisite in assuring dignity (especially for those currently marginalized) via projects centering equity, sovereignty, liberation, and social justice.

Note that Tuck’s concept of “desire-based” methods counter current “damage-centered research,” which are typically deficit-oriented and display “one-dimensional” representations of marginalized communities as “depleted, ruined, and hopeless.” Instead, BIPOC desire-based methods forefront BIPOC “sovereignty as a core element of...being and meaning making,” and “reformulate the ways research is framed and conducted...[by] reimagin[ing] how findings might be used by, for, and with communities.” This will be discussed further in Chapter 4 (pp. 145).

and recognizes our interdependent interconnectivity as part of a holistically emancipatory critical pedagogy in practice. An eco-consciousness, then, includes such concerns of ecological harmony present in BCD and JS. It extends humanism to incorporate all life forms in a sort of animistic way of life. Through inclusivity that ventures to transcend ideologies of hierarchy, universality, and fixity that promote oppression, inequity, and injustice, critical ecopedagogies can be said to advance social justice as an expression of love while recognizing plants, humans, animals, waterways, mountains, and so on, as coexisting entities that interact with and depend upon one another and are deserving of dignity (Kahn, 2008). The focus of critical ecopedagogies, then, are to foster an eco-consciousness by extending beyond exclusively humanistic or environmentalist perspectives toward an understanding of the imperative of an all-encompassing harmonious or cosmic coexistence with our entire ecology based upon relations of mutual respect.³³ Most importantly, eco-consciousness is fundamental in working toward holistic socially-just and liberatory transformation in hopes of affording all the opportunity to live a dignified life.

Extending Freire's Critical Pedagogy

Richard Shaull wrote in the foreword of Freire's, *Pedagogy of the Oppressed*, "Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world" (Freire, 2010). As the text suggests, it is assumed that the methods Freire emphasized in his book could lead to a non-oppressive, transformative education through self-actualization and human agency. In this light,

³³ It is useful to distinguish the term "cosmic" as it is employed in this dissertation from the rhetoric commonly found in public discourse and popular culture under the rubric of "New Age consciousness." The word cosmic is referenced in this work to relay a sort of harmonious ecological equilibrium. As will become clear, this concept is integral to a liberatory pedagogical vision reflecting an integrated theoretical perspective, as explained above.

Freire's messages are displayed as vehicles that can be applied toward fostering a safe space for a liberating education through an approach that addresses students' needs to engage in relevant material.

Currently, dominant education models include an overt and covert curriculum, which non-traditionalists suggest are oppressive: the overt being the subjects studied (i.e. whitewashing of Math, English, Science, History, and etc.) and the covert representing the hidden curriculum (i.e. teaching *obedience* through authority, raising hands to speak, asking to use restroom, and reinforcing *passivity* through not being able to question teachers knowledge, and etc.). These curriculums are imposed and reinforced through what Freire coined the “banking” concept education in *Pedagogy of the Oppressed*, where information is tasked to be deposited in students' heads by “narrating subjects” (teachers) to the “listening objects” (students) who are required to regurgitate the information (Ibid). Though overt and covert curriculum are different in their content, both tend to reinforce obedience and passive consumption through repetitive narration and via a method of teaching that is “detached” and “disconnected,” thus simply filling students minds as they reproduce the same information on exams and in class. Freire suggested that this form of education is oppressive and dehumanizes by refraining from teaching critical thinking and instead reinforcing dominant ideologies and systematically subjugating people, which leaves students unconscious of systemic inequality and thus their ability to be active participants in changing their situations. Recognizing rote memorization, standardized testing, competitive grading, and the inability to ask why or question teachers are some of what Freire alluded to as oppressive modes of teaching present in traditional school models, and which help illuminate the need for what he considered a liberating education. As he suggested:

The more students work at storing the deposits entrusted to them, the less they develop the critical consciousness which would result from their intervention in the world as transformers of that world. The more completely they accept the passive role imposed on them, the more they tend simply to adapt to the world as it is and to the fragmented view of reality deposited in them (Freire, 2010).

Freire's message was meant to be more powerful than a critique of the schooling system. Rather, his message as it is discussed today, displays the ways in which the institution of schooling is used as a means to recreate systems of inequality and injustice that remove critical consciousness and thus the human agency necessary to stimulate change. Freire's message was meant to help liberate oppressed persons from their situation by offering them insight into their own ability to be agents of change within their lives and their communities (i.e. personal and societal transformation). And with the goal of engaging human agency to build ourselves and our world anew, Freire saw the potential of education to engender creativity so that self-actualization could ensue, yet he understood that unless people were aware of their situation, this transformation could not occur. Thus, he relayed the importance of learning, and more specifically, he recognized the possibility of education to stand for something more stimulating: "education as the practice of freedom" (hooks, 1994).

In *Pedagogy of the Oppressed*, Freire offered modes of engaging students beyond the surface level through non-oppressive education (hooks, 2010). He suggested engagement as representing mutual participation, where students would be able to see themselves in the materials presented (i.e. relevance) and actively participate in the process of their education. He believed this *pedagogy of the oppressed* could be liberating if engaged as a practice of freedom. Moreover, Freire presented transformation and liberation in relation to changing the self and the oppressive situation. Attributing the lack of the belief in change to the depletion of creativity, he insisted on engaging in imagination as a means to liberate. He emphasized the necessity of

mutual respect, moving beyond authority through an organic dialogical student-teacher and student-student learning relationship that transcended hierarchy and fixity. He proposed education move away from a banking method and delve into creativity and imagination, i.e. a critical analysis or “problem posing” education so as to unearth the root of problems (Freire, 2010). In this sense, Freire saw education as necessary to propel the human as an agent of change rather than a victim of circumstance. Through the process of self-awareness, Freire felt education could become a vehicle to transform the internal (individual) and external (society), and this eventually led him to the inclusion of the natural environment via ecopedagogy before passing.

Due to the use of Freire’s texts, many pedagogues have implemented critical and creative methods to truly engage their students in active participation through non-traditional frameworks that are relevant to students' lives and as a means to counter what some have called an oppressive teaching approach. Per bell hooks (2010), engagement means delving beyond the surface level. In this sense, the term “engaged” refers to active participation, finding relevance in materials, an ability to connect topics beyond the “official” curriculum, and seeing the self grow as a part of the learning experience, i.e. self-actualization. Freire (2010) specifically suggested teachers contribute as facilitators of dialogue instead of authoritative educators, so as to incorporate all participants as equal co-contributors in a process of critical engagement that seeks to raise consciousness in hopes of engendering change (“*conscientização*” or “conscientization”). Due to the fluidity of Freire’s methods, which are purposefully not clearly defined or standardized, there are many ways these non-traditional models of teaching are expressed, especially those that foster creatively engaging the world (Ibid). This research attempts to take the ecopedagogy work that Freire began, toward a more holistic, engaged, and radical BIPOC and intersectional BIPOC-led critical ecopedagogy.

Ecopedagogy and Marcuse's Reschooling

Both Freire and Marcuse recognized the repressive, alienating characteristics of the schooling system that reinforce dominant ideology, uncritical thought, and one-dimensional personality, and noted the ability of education to foster critical, multidimensional beings that were capable of engaging progressive liberatory change (Kellner, Lewis, & Pierce, 2008; Kellner, 2009). Similar to Freire, Marcuse recognized the liberatory implications that:

[E]ducation as an analysis of the vast history of exploitation, domination, and oppression emerging from within the modernist project of enlightenment and industrialization has to be articulated together, their underlying similarities emphasized in order to build a coherent counter-hegemonic bloc united in the struggle for freedom (Kellner, 2009).

In this light, Marcuse sought to rebuild versus destroy the established institutions. Both saw how education held liberatory potentialities in its ability to nurture critical thinking as a means for an all-encompassing justice-oriented transformation on the individual, cultural, social, and economic level. And education for Marcuse was the vehicle to incite progressive and socially-just transformative change because it held the potential to cultivate critical thinking paired with action (Ibid). He essentially believed that all academic subjects of study, including science, philosophy, history, economics, or the social sciences, could either be used to reinforce the status quo, or instead be instrumental in working towards democratic ends (Kellner, Lewis, & Pierce, 2008; Kellner, 2009). He held that the capacity of the institution was in its ability to encourage “[non-authoritarian] pedagogy, political education, and student participation/activism” (Kellner, 2008). As such, he recognized the academic arena possessed the potential for people to combat injustice through intentional commitments to socially-just liberation (Kellner, 2009). Thus, Marcuse's vision paralleled many of the classical philosophers of education such as Jean-Jacques Rousseau and John Dewey per their notions of a cultivation of the fully-developed

individual, as well as modern pedagogues such as Freire and hooks in offering education as a practice of freedom.

Marcuse contributed greatly to critical analysis, radical pedagogy, and social and ecological transformation in contemporary U.S. society. In his co-written text, “*Marcuse’s Challenge to Education*,” Kellner (2009) specifically delves into Marcuse’s work by exploring his pedagogical critiques and alternatives. Much of this writing illuminates Marcuse’s critical analysis of the reconstruction of schooling and society amid “the current era of global capitalism.” Nonetheless, even his “most trenchant critique of advanced capitalist society is influenced by his hope for an alternative human culture and society” (Ibid). With a holistic awareness of an inclusive liberation project stemming from a sort of idealist utopian vision grounded in critical theory and resistance, Marcuse’s work is relevant today for anyone in the field of education and beyond working toward radical critical pedagogy and socially-just change.

Prior to his arrival in the U.S., Marcuse was one of the most active participants in the interdisciplinary efforts of the Institute for Social Research in Frankfurt, helping build a distinct concept of “critical theory that combined philosophy, social theory, economics, cultural criticism, psychology, radical pedagogy, and other disciplines in an attempt to develop a theory of the present age in a dialectic of domination and emancipation” (Kellner, Lewis, & Pierce, 2008). As part of his philosophy of education, he advanced the German concept of *Bildung*, “where education is meant to enrich the individual and culture, while transcending the present conditions of immediacy that inhibit and stifle human development.” Inasmuch, notions of standardized education were and continue to be seen as reinforcing conformity, passivity, and blind obedience. Hence, education rooted in *Bildung* sought to embrace the development of “the whole individual body and mind, and reason and sentiment” (Kellner, 2009). Because Marcuse

was hesitant to accept schooling as is, he analyzed how it reproduced an oppressive status quo and proposed, “critical thinking, moral judgment, and political activism or strong civic engagement,” as central to *Bildung* to work towards the goal of liberatory transformation through cultivation of the entire self as well as society (Kellner, Lewis, & Pierce, 2008; Kellner, 2009).

Marcuse’s concepts surrounding reschooling closely parallel critical ecopedagogy, as his understanding of the consequences of capitalism are intimately bound to the “degradation of the environment” (Kellner, Lewis, & Pierce, 2008). Kellner notes how Marcuse highlighted human liberation as tied to “reconciliation with nature” and the need to reestablish “peace and harmony among human beings,” with future generations in mind (Kellner, 1992). Marcuse realized that, “until aggression and violence within human beings was diminished, there would necessarily be continued destruction of nature, as well as violence against other human beings” (Ibid).

For example, as anti-Vietnam war movements were taking place, Marcuse spoke to U.S. interventions as waging “ecocide” on the country and genocide on its inhabitants, suggesting “the violation of the earth is a vital aspect of the counterrevolution” (Feenberg, Koval, Kellner, & Alford, 1992). He relayed in a 1972 symposium on “Ecology and Revolution” in Paris, the issue of the status quo as a war machine that escapes none:

It is no longer enough to do away with people living now; life must also be denied to those who aren't even born yet by burning and poisoning the earth, defoliating the forests, blowing up the dikes. This bloody insanity will not alter the ultimate course of the war but it is a very clear expression of where contemporary capitalism is at: the cruel waste of productive resources in the imperialist homeland goes hand in hand with the cruel waste of destructive forces and consumption of commodities of death manufactured by the war industry (Kellner, 2004).

Accordingly, Marcuse observed this anthropocentric vision of nature as a commodity to be exploited by and for the pursuit of capitalist gains at the expense of the environment and the

persons who are used as its labor force.³⁴ As Marcuse saw it, “capitalism inevitably destroyed nature.”³⁵ Still, he recognized the potential of an equitable and cosmic alternative by reflecting on the 1960s social movement worldviews of his time, which “promoted needs of love, community, health, peace, and ecological perspectives” (Kellner, 2009). This, of course, is a powerful expression of CEL.

With this in mind, Marcuse presents direct insight into the impact of the status quo on the ecology, he offers a dynamic analysis of critical pedagogy, and provides ideals surrounding reschooling via radical pedagogy paired with action. He critiques the current standardization of the schooling system, the rise of militant anti-corporate globalization movements (as opposed to a non-militant resistance), and the degradation of the environment (Ibid). His work recognizes the detrimental impacts of the environment and all inhabitants due to the relentless aftermath of unfettered capitalism and neoliberal globalization. Thus, his radical pedagogy via “critique, liberation, and reschooling” parallels critical ecopedagogy projects in its understanding of interconnectivity, liberation, and socially-just ideals as necessary to confronting global ecological crises, and it stresses this inclusion within, across, and removed from the academic arena: from education to agitation, and curricula to community.

As an extension of ecopedagogy, Marcuse’s radical critical pedagogy informs this dissertation through direct application of theory and practice. His work contributes to critical ecopedagogies in that it offers insight into the need for eco-conscious subject matter across all realms of the academy and beyond. It reminds those immersed in the ecopedagogy project of the

³⁴ For example, resource extraction often requires mining of mountains in turn destroying landscapes and waterways, such as present in India’s Indigenous Dongria Kondh battling British mining corporation Vedanta due to witnessing the destruction on neighboring lands (Survival International, 2020). Not only are the Indigenous and local communities harmed, but other-than-human persons are impacted by such projects including insects, local animals, and plant life.

³⁵ See: Feenberg, Kovel, Kellner, & Alford, 1992.

need for radical critique paired with action. In addition to offering “a version of pedagogy *as* politics that is useful for understanding the educational role currently being played by revolutionary groups,” Marcuse offers ecopedagogy a historical grounding (Ibid). He thus provides an opportunity to learn from past movements and actions that essentially seek a similar goal of liberatory democratic change, which allows ecopedagogy to acquire knowledge from these movements’ prior successes and failures. Marcuse’s reschooling offers a vivid and plausible approach to working within the academic realm to grow the self and society in conjunction with progressive social transformation. Moreover, Marcuse critiques the manner in which capitalism alters the educational landscape and thus reemphasizes the importance of reschooling to develop the whole self through critical analysis, consciousness raising, and activism through an individual and communal process working toward the liberatory democratic project.

Marcuse’s work further informs the ecopedagogy project by reminding it take into account the insights of marginalized and oppressed groups many similar efforts are said to benefit, by continually including holistic community-based knowledge to determine the parameters for measuring successes and failures. It advises ecopedagogues that it is imminent to work *with* those most marginalized to conceive the most suitable application instead of falling into the trap of engendering change *without* or *on behalf of* the people. Thus, the ecopedagogy project in conjunction with the work of Marcuse offers insights and parallels these themes that work toward socially-just change to offer all the opportunity to live a dignified life.

CEL, on the other hand, are able to extend the reach of Marcuse’s work toward holistic, eco-conscious endeavors. It is able to further inform Marcuse’s work through multi, inter and transdisciplinary methods. While Marcuse supported a multitude of causes from student

engagement to anti-war movements and civil rights protests, CEL are able to gather these unique social struggles into messages of communal emancipation. Rather, CEL attempt to continually converge multiple BIPOC and intersectional knowledge systems and practices that engage liberatory change, which are generally advocated independently, to additionally offer holistic approaches that foster inclusivity through collaboration, dialogue, critical thinking, and action.

This combined work is able to express the impending urgency of educators, ecopedagogues, environmentalists, humanists, and all concerned with the liberatory democratic project, to confront the ecological crises and engage in an informed and radical critical pedagogy for the purpose of an unavoidably crucial transition toward epistemological and ontological shifts centering BIPOC desire-based frameworks, discourses, and projects, which consider all beings as necessary to survival on this planet. Moreover, Marcuse's contributions and the ecopedagogy project reinforce the interconnected quality of the planet and its inhabitants, human and otherwise. Thus, this dissertation seeks to coalesce CEL with BCD and JS through the radical pedagogy of such theorists as Karl Marx, Martin Buber, Herbert Marcuse, Erich Fromm, Paulo Freire, Patricia Hill Collins, bell hooks, Kimberlé Crenshaw, Sandy Grande, Robert Bullard, Julian Agyeman, Louisa Maffi, Eve Tuck, and Richard Kahn, in attempt to address these issues within the institution and beyond, through BIPOC and intersectional BIPOC-led critical ideological underpinnings and justice-oriented practices that stress the reality of all beings in our cosmic community as deserving the opportunity to live a dignified life.

CHAPTER 3

THE ERA OF BIOCULTURAL DIVERSITY

My natural inclination was to see relationships, to see the threads that connect the world, to join instead of divide. But science is rigorous in separating the observer from the observed, and the observed from the observer. Why two flowers are beautiful together would violate the division necessary for objectivity.

-Robin Wall Kimmerer, 2013

Time [is] ripe for a moment of reflection on this emerging integrated perspective on the various manifestations of the diversity of life, the threats they are facing, the foreseeable consequences of massive disruption of such long-standing interactions, and the possible courses of action to ensure the perpetuation and continued development of all forms of diversity on Earth.

-Louisa Maffi, 2001

Interdependence between our environment and its many inhabitants influences the holistic health of our planet: a planet threatened by growing anthropogenic climate destabilization,³⁶ a proliferating “dual erosion” of languages and species,³⁷ and over half the world’s human population still struggling to meet basic needs.³⁸ With increased recognition of the impaired state of our global ecology, BCD is a rapidly expanding field that attempts to draw upon these interactions to reveal the inextricable connection between “linguistic, cultural, and biological diversity,” (Maffi & Woodley, 2010). As a pioneer and thought leader of this emerging field, Maffi explains how review of our global diversities demonstrate that BCD are “interlinked and interdependent with significant implications for the conservation of [these] diversities.” The definition and key elements that encompass BCD per Maffi (2007) are as follows:

³⁶ Additional information found via NASA, 2019; and IPCC, 2014.

³⁷ See: Maffi, 1998; Maffi, 2001; Skutnabb-Kangas, Maffi, & Harmon, 2003; Sutherland, 2003; and Pretty et al., 2009.

³⁸ For details see: World Bank, 2018.

Biocultural diversity comprises the diversity of life in all its manifestations: biological, cultural, and linguistic, which are interrelated (and likely co-evolved) within a complex socio-ecological adaptive system.

- 1) The diversity of life is [made up of] the diversity of plants and animal species, habitats and ecosystems found on the planet, [and] also of the diversity of human cultures and languages.
- 2) These diversities [are different manifestations of a single, complex whole and do not exist in separate and parallel realms.]
- 3) The links among these diversities have developed over time through the cumulative global effects of mutual adaptations, probably of a co-evolutionary nature, between humans and the environment at the local level.

From this definition we recognize that the ecology is made up of a diverse array of other-than-human inhabitants; human beings, cultures, and languages; nature; and the past, present, and future relationships among and between all organisms and habitats. BCD articulates how all beings and our environments perpetually coexist, co-evolve, and influence one another as part of a dynamic, interrelational, fluid world. The field exhibits how our interconnected ecosystem is always in flux, either forced to change, naturally evolve, and/or self-regulate toward actual or perceived homeostasis across time and space through relationships (often symbiotic) of mutualism, commensalism, or parasitism.³⁹

The study of biological and cultural diversity as separate disciplines introduces the value of a thriving diversity. A flourishing biological diversity is essential for both ecosystem resilience and overall ecohealth, as a rich biodiversity provides protection from environmental shocks and stresses.⁴⁰ Likewise, maintenance of cultural diversity helps enhance social system

³⁹ For reference, review these brief definitions of *symbiotic*: regular or frequent interactions; *mutualism*: interdependent association where both organisms benefit and none are harmed; *commensalism*: where one partner benefits but the other remains unharmed; and *parasitism*: where one benefits at the expense of the other (Yu & Martin, 2016; Bogitsh, Carter, & Oeltmann, 2019).

⁴⁰ As found in Pretty et al. (2009): “Ecosystem health refers to the extent to which complex ecosystems maintain their function in the face of disturbance. This resilience is an essential precondition to sustainable livelihoods, human health and other social objectives, also reflected in the Millennium Development Goals (MEA, 2005;

resilience and increase the human capacity of adaptability and change.⁴¹ Both a rich biological and cultural diversity are thus essential to holistic wellbeing and endurance on the respective level.

BCD research is a contemporary progression of scholarship that draws from “anthropological, ethnobiological, and ethnoecological insights,” which converge these formerly fragmented fields to acknowledge and explore the undeniable interconnected relationships between “human language, knowledge and practices with the environment” (Maffi, 2007). By merging research conducted on these individual manifestations of diversity, the field of BCD conceives and actualizes projects to protect, preserve, and revitalize biological, cultural, and linguistic diversity at their junctions. The field examines biodiversity alongside cultural and linguistic diversity (including associated eco-knowledge), especially those on the brink of extinction, to critically assess the root causes of ecological and anthropogenic havoc, counter global BCD threats, suitably guard and assure ecological equilibrium through such efforts as conservation and revitalization, and compensate Local and Indigenous Peoples for use of their knowledge and resources (Maffi, 2001; Posey & Dutfield, 1996).⁴²

Most of the contemporary BCD studies and projects being conducted suggest a more transdisciplinary approach that includes a wide range of community members as contributing in

Rapport 2006).”

⁴¹ See: Carpenter, Walker, Anderies, & Abel, 2001; Stolton, Dudley, & Randall, 2008; and Pretty et al., 2009.

⁴² In similar fashion to McCarty & Nicholas (2014), I “use the terms Indigenous, Native, American Indian, Alaska Native, Métis, and First Nations to refer to peoples whose ancestry within the lands now claimed by the U.S. and Canada predates the colonial invasion and whose oral and written traditions place them as the original occupants of those lands.”

While definitions for Indigenous Peoples greatly vary, I include one for reference as adopted by the World Council of Indigenous Peoples: “Indigenous [Peoples] are such population groups who from ancient times have inhabited the land where we live, who are aware of having a character of our own, with social traditions and means of expressions that are linked to the country inherited from our ancestors, with a language of our own, and having certain essential and unique characteristics which confer upon us the strong conviction of belonging to a people, who have an identity in ourselves and should be thus regarded by others” (IUCN, 1997).

the development of the work, thus recommending cooperative and integrated methods of inquiry and research production.⁴³ These newer works attempt to ascertain anticipatory ecological problems and develop the field holistically by building across boundaries through multiple approaches. Local BCD efforts include but are not limited to “local revitalization projects such as outpost and hunter-support programs, ecotourism projects, culturally-appropriate education schemes, [and] language revitalization initiatives.” On the larger scale, BCD implementation is visible in “the fair-trade movement, certification programs, and the shift toward education for planetary citizenship” (Pretty et al., 2009), as well as “applications in professional and policy domains internationally, particularly among United Nations (UN) agencies and major conservation organizations,” emerging graduate-level programs conducting research on BCD, such as the Centre for Biocultural Diversity at the University of Kent, UK, and increasingly across mainstream media outlets (Terralingua, 2014).⁴⁴ As Maffi (2005) expresses, “the relevance of affecting policy and public opinion is high on the minds of researchers in this field, giving it its characteristic mixture of theory and practice, research and advocacy, and knowledge building and...dissemination.” BCD scholars thus note that further integrative work within the academy is indispensable to more holistically unearth the intricacies of these interconnected diversities and advance the field through critically devised projects (Rapport, 2006; Maffi, 2001), “in the hope of achieving a sustainable future where both ecological and social systems are

⁴³ See: Nabhan, Pynes, & Joe, 2002; Maffi, 2005; Kassam, 2009; and Pretty et al., 2009.

⁴⁴ The notion of planetary citizenship inherently possesses various problems as it relates to sovereignty and the histories of exclusion and/or voluntary independence of First Nation and Black people in the U.S. Rather, not all people desire to be included in a system that excluded, enslaved, genocided, and/or oppressed them in one form or another. Thus, the push for planetary citizenship is itself a violent imposition if forced upon people who ethically should be guaranteed the right to opt out, define for themselves, and maintain their own ways of life, TEK, political systems, concepts of order, sovereignty, and autonomy.

Terralingua’s BCD Education Initiative (2014) offers the following authors for more on the reach of BCD research and application: Oviedo, Maffi, & Larsen, 2000; Borrini-Feyerabend, MacDonald & Maffi, 2004; Shrumm, 2010; Verschuuren, Wild, McNeely, & Oviedo, 2010; and Pungetti, Oviedo, & Hooke, 2012.

resilient to the external pressures through the maintenance of diversity” (Pretty et al., 2009).⁴⁵

As BCD research exhibits, biological and cultural diversity are so intimately related that oftentimes when one system shifts it, “leads to a change in the other” (Pretty et al., 2009). This integrated approach displays our interconnectivity, for better and worse, showing how interactions on the seemingly micro level hold the potential to create shifts on *other* micro, and macro levels in a sort of butterfly effect. For instance, BCD research frequently utilizes language as a proxy for cultural diversity and communicates the ways language loss can influence decreases in cultural *and* biological diversity.⁴⁶ As Maffi (2010) expresses, “if languages are being lost, and if language loss is a factor in the erosion of cultural values, knowledge, and practices relevant to the environment, then a reduction in linguistic and cultural diversity could significantly affect the state of biodiversity.” The same is the case on the reverse end: decline in biodiversity could similarly endanger the people and communities’ dependent upon local ecologies, i.e. biodiversity loss similarly threatens cultural and linguistic diversity (Maffi, 2001).

In their research, Pretty et al. (2009) investigate “four bridges” that link nature with culture, including, “beliefs and worldviews, livelihoods and practices, knowledge bases and languages, and norms and institutions.” This work reveals how all of the aforementioned are facing myriad levels of loss and/or change, including new degrees of depletion and death that influence a mutual impact of “endangered species, threatened habitats, dying languages,” and the erasure of “vast knowledge bases.” The common drivers of these mutual threats are increasingly being explored via integrative BCD methods to address shifts, conservation, preservation, sustainability, and revitalization of biological, cultural, and linguistic diversities. Still, much more corresponding research needs to be conducted and streamlined to fully assess the individual

⁴⁵ This excerpt is pulled from Pretty et al. (2009), which is interpreted from Rapport (2006).

⁴⁶ See: Skutnabb-Kangas, Maffi, & Harmon, 2003; and Pretty et al., 2009.

and mutual erosion of BCD, its impacts, and effective practices to safeguard these diversities, which is markedly relevant now due to the higher than normal magnitudes of loss that are steadily multiplying (Pretty et al., 2009).

Biological, cultural, and linguistic diversity research and the convergence via BCD scholarship have all grown exponentially over the years, offering and employing a more critical and all-encompassing study that continues to evolve. BCD research further demonstrates the reciprocal implications of our interconnectivity, as local impacts eventually influence long-term effects worldwide and vice versa, and helps bridge our global connections in the Anthropocene to better tend to the needs, rights, and longevity of a thriving, interrelated ecology. And though anthropogenic ecological harm is more widely recognized via a growing body of scholarship, broader dissemination, and easier access to such knowledge within and beyond the academy, valuing and nurturing BCD is still frequently contested and discounted.⁴⁷

Nevertheless, those doing BCD work currently engage research from each field to build a more robust body of integrated work, as will be featured in this chapter. BCD scholars gather biological, cultural, and linguistic diversity research as it relates to ecohealth, threats, loss, conservation, and sustainability efforts. These efforts include the study of biologically diverse hotspots, or “areas featuring exceptional concentrations of endemic species,” that are presently “experiencing exceptional loss of habitat” (Myers, Mittermeier, Mittermeier, Da Fonseca, & Kent, 2000), which aid in protecting and restoring the long-term vitality of natural environments

⁴⁷ Kellner (1995) articulates the concept of the *contested terrain*, where struggle occurs between many groups, meanings, and messages that are all competing for dominance. Thus, we have to analyze the existing power dynamics that reinforce hegemony and interlocking systems of domination and how BCD research can reinforce these systems, in opposition to the ways that it can be used to counter such and work toward socially-just and ecologically grounded liberation. As is, there is still much critical work to be done.

See: NASA, 2019; IPCC, 2014; and Cook et al., 2013.

and local organisms.⁴⁸ BCD scholars also collect exhaustive resources from cultural and linguistic studies that highlight diversity of knowledge systems, ways of life, orientations to the world, and language. This includes cultural diversity measurements that entail in large part, the “density of ethnic groups and linguistic diversity (frequently used as proxies for cultural diversity)”, which assist in protecting, compensating, and revitalizing Local Communities and Indigenous Peoples, their cultures, languages, epistemologies, ontologies, and pedagogies.⁴⁹ Gathering biological, cultural, and linguistic diversity research thus assists in countering the inevitability of biocultural extinction, which is propelled by rampant neoliberal globalization, i.e. urbanization and industrialization (Maffi & Woodley, 2010; Scheer, 2019). Indeed, as we consider the influence of each field of study by converging the works at the junctions of BCD in the age of a swelling mutual erosion of languages and species, we clearly see the potential ecopedagogical contributions of the individual and integrated fields to maintain, guard, restore, and sustain a richly diverse, interconnected, harmonious cosmos.

The Spring of BCD Goals, Declarations and Resolutions

The historical roots of BCD trace back thirty years, around the same time biodiversity research became globally significant. In 1988, scientists and environmentalists met with Local Communities and Indigenous Peoples from around the world, founding the International Society of Ethnobiology (ISE). This group of over “600 people from 35 countries and 16 Indigenous organizations,” (ISE, 2019) mobilized to discuss “a common strategy” (Posey & Dutfield, 1996) to combat biological and cultural diversity loss at the First International Congress of Ethnobiology in Belém, Brazil. The congress drafted the *Declaration of Belém*, announcing

⁴⁸ As articulated from Skutnabb-Kangas, Maffi, & Harmon (2003) via Pretty et al., 2009.

⁴⁹ See: Skutnabb-Kangas, Maffi, & Harmon, 2003; Sutherland, 2003; and Pretty et al., 2009.

alarming rates of ecological loss, contributions of Indigenous and Local Peoples to “99 percent of the world’s genetic resources,” and the associated “inextricable link between cultural and biological diversity.” The brief declaration outlined the responsibilities and roles of scientists and environmentalists in safeguarding Local Communities and Indigenous Peoples rights, knowledge, and needs. This conference marked “the first time that an international scientific organization recognized a basic obligation” to create procedures to compensate Local and Indigenous Peoples for “utilization of their knowledge and their biological resources,” (Posey & Dutfield, 1996) and ushered the onset of three decades of work committed to issues unearthing and supporting the complexities of the local and global interconnectivity of biological, cultural, and linguistic diversity.

Within four years of the first ISE conference and the pronouncement of the inextricable link between biological and cultural diversity, the 1992 UN Conference on Environment and Development (UNCED), widely known as the Rio Earth Summit, took place in Brazil. The 35,000 attendees of the international conference, including 118 heads of state and government (Brooke, 1992), assembled to create post-Cold War global partnerships and collaborative efforts to reconcile economic development and environmental sustainability. The Rio Earth Summit influenced all UN conferences thereafter that examined the relationships between “human rights, population, social development, women, and human settlements-- and the need for environmentally sustainable development” (UN, 1997), and generated the ascension of myriad UN-led conferences featuring biological, cultural, and biocultural diversity efforts.

Nonetheless, green (environmental and sustainable development) and brown (human wellbeing and social justice) agendas displayed clear ideological divides, which remain glaringly

relevant today.⁵⁰ As Kahn (2010) explains, representatives from the hemispheric north addressed, “chief concerns such as habitat conservation and species preservation,” arguing for green issues relating to the environment and sustainable development, which were “generally favored by financially wealthier nations/regions.” Those in the hemispheric south argued instead that the roots of global environmental issues could be traced to “hemispheric economic inequalities,” leading the north to over-produce and over-consume “while the south [remained] mal-developed and being exploited for the very natural resources that northern interests argued [needed preservation].”⁵¹ The brown agenda thus called for infrastructural responses, “favored by less monetarily wealthy countries/regions,” such as clean water, sanitation, and population health (Ibid).

Table 1: Differentiating Characteristics of the Green and the Brown Agenda

Characteristics	Green Agenda	Brown Agenda
First order impact	Ecosystem health	Human health
Timing	Delayed	Immediate
Scale	Regional and global	Local
Worst affected	Future generation	Lower income group
Attitude to nature	Protect and work with	Manipulate to serve human needs
Attitude to people	Educate	Work with
Attitude to environmental services	Use less	Provide more
Aspect emphasised in relation to water	Overuse - need to protect water resource	Inadequate access and poor quality
Typical proponent	Environmentalists	Urbanists

Source: McGranahan & Satterthwaite, 2000.

In spite of contested ideological goals to tackle these problems from significantly

⁵⁰ See: Kahn, 2010; Khan 2014; and Allen & You, 2002.

⁵¹ See the following chapter (pp. 134) re: emerging issues associated with the World Wildlife Fund (WWF) as a major conservation group that is being exposed for attempting to protect a biodiversity hotspot (green agenda) without the consent of the Black Indigenous Locals, and is accused of committing an illegal land grab and human rights violations (brown agenda) (Longo, 2018).

divergent vantage points, the summit still influenced and advanced revolutionary environmental and ecological content and numerous transnational projects. To begin, the Earth Charter was developed as follow-up document to the conference to produce a, “global consensus statement of values and principles for a sustainable future,” (Earth Charter Initiative, 2006). After about a decade of worldwide consultation and the drafting contributions of over 5,000 people, the Earth Charter Initiative was launched in June 2000, merging ecological problems with socioeconomic, political, and cultural problems (Kahn, 2010; Gruenewald 2004). The initiative’s current amended mission is to “actively participate, in a systemic and integrated way, in the present transition to sustainable ways of living on the planet, founded on a shared ethical framework that includes respect and care for the community of life, ecological integrity, universal human rights, respect for diversity, social and economic justice, democracy, and a culture of peace” (Earth Charter Initiative, 2015).⁵²

The Earth Summit also produced a number of declarations, proposals, and conventions. The *Treaty on Environmental Education for Sustainable Societies and Global Responsibilities* set out 65 statements outlining the role of environmental education for sustainable development (Gadotti, 2009). The *Rio Declaration on Environment and Development*, which was supported by more than 160 countries, outlined 27 broad principles and introduced Agenda 21, a non-binding UN sustainable development action plan for the 21st century (Allen & You, 2002).⁵³ Follow-up documents to the UN Educational, Scientific and Cultural Organization’s (UNESCO) Agenda 21 have since been drafted, including the Millennium Development Goals (MDGs), the

⁵² Note that this highly regarded document still remains unsigned by the U.S. For more on the origination of the Charter as an idea developed by Maurice Strong and Mikhail Gorbachev as early as 1987, and a historical review of the drafting process over the years, see Kahn (2010) and EarthCharter.org.

⁵³ Agenda 21 included 40 points, focusing on social and economic dimensions, conservation and management of resources for development, strengthening the role of major groups, and means of implementation (Keating, 1992).

Sustainable Development Goals (SDGs), and Agenda 2030.⁵⁴ The advent of the UN Framework Convention on Climate Change (UNFCCC) at the Rio Earth Summit influenced the UNFCCC's first annual Conference of the Parties (COP) in 1995. This eventually led to the COP3's notorious 1997 Kyoto Protocol that extended the UNFCCC's missions to mitigate threats of climate destabilization and reduce the effects of global warming, and the COP21's 2015 Paris Agreement, which expanded this mission by adding a move toward a sustainable, low carbon future (Environment and Ecology, 2018; UNFCCC, 2018). And the Convention on Biological Diversity (CBD) first opened for signatures at the summit, ultimately establishing the *Declaration on Bio-Cultural Diversity* with UNESCO in 2010 (CBD, 2010).⁵⁵

Ecological discourse and planning inevitably burgeoned, yet efforts remained propelled

⁵⁴ As interpreted by Hulme (2009): The Organisation for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC) helped formulate the International Development Goals (IDGs); the UN Secretariat assisted in drafting the Millennium Declaration; and the final negotiations between the UN, DAC, World Bank, and International Monetary Fund (IMF) amended the IDGs from 1996-2000 to become the basis of the MDGs.

The MDGs were integrated within existing structures, rather than abandoning and ultimately altering the overarching system. Yet the goals "emerged as one of the central pillars of the global fight against poverty" (UN, 2015b; Hulme, 2009; Hulme & Scott, 2010). And while "[m]ost UN members subsequently started to refer to the [MDGs] and many used them as part of their policy and planning processes," the U.S. remained an exception. Since power resided with a neoconservative president (Bush) and his neoconservative advisors that had little foreign policy experience and no involvement in the IDG or MDG process, they unabashedly stated that all of their decisions would only regard U.S. national interest, reinforcing this point by "forcefully... refusing to collaborate in international processes to curb climate change" (Hulme, 2009). See also: UN, 2000.

For reference, the eight MDGs are: 1) To eradicate extreme poverty and hunger, 2) To achieve universal primary education, 3) To promote gender equality and empower women, 4) To reduce child mortality, 5) To improve maternal health, 6) To combat HIV/AIDS, malaria, and other diseases, 7) To ensure environmental sustainability, and 8) To develop a global partnership for development.

⁵⁵ While a number of these declarations and organizations were initiated at the Earth Summit, the ISE's 1988 Declaration of Belém and Terralingua's 1996 conferences and subsequent actions mobilized UNESCO toward organizations and resolutions emphasizing BCD efforts.

Ten years after the Rio Earth Summit and two years following the Millennium Summit, the 2002 World Summit on Sustainable Development (also referred to as Rio+10, or WSSD by critics) brought global leaders and NGOs together to assess the progress since the Agenda 21 initiatives (Allen & You, 2002), resolving to renew commitment to "achieving the internationally agreed development goals" (UN, 2002). Still, much remained deficient with a number of reaffirmed goals that provided minimal advances and gaps in outcomes, only exacerbated by divisions among and between corporations, governments, technocrats, grassroots theorists, activists, educators, and civil societies including Local Peoples and Indigenous Communities (Kahn, 2010; La Viña, Hoff and DeRose, 2003; UN, 2002).

by first-world ventures that failed to challenge the market economy or fundamentally change the overarching system, and often opposed and/or neglected the immediate needs and rights of marginalized peoples' including a majority of BIPOC, threatened species, and endangered habitats.⁵⁶ Mindful of such, Maffi and David Harmon launched Terralingua in 1996 and sponsored two scholarly meetings. Gary Nabhan organized the symposium, *Losing Species, Languages and Stories: Linking Cultural and Environmental Change in the Binational Southwest*, which took place in Tucson, AZ in the spring. Maffi then organized the international *Endangered Languages, Endangered Knowledge, Endangered Environments* conference in Berkeley, CA that fall (Maffi, 2001; Terralingua, 2018). The Berkeley conference was the first international meeting of representatives comprised of experts spanning Indigenous and Local People's, academics, advocates, economists, and conservationists that convened for the purpose of discussing major questions and concerns regarding the interrelationships of biological, cultural, and linguistic diversity, the associated extreme threats faced by both "the world's biodiversity," and "human groups, their languages, and cultures," and how to educate the general public on these global threats (Maffi, 2001). BCD soon surfaced as a new field of research and practice, nudging its way into the discourse through the ISE and Terralingua's initial efforts (Maffi & Woodley, 2010).

Within a decade of the adoption of the MDGs, the UN declared 2010 the International Year of Biodiversity and the International Year of Rapprochement of Cultures (CBD, 2010; UN, 2010). The UNCBD established clear and concise definitions of both biological and cultural diversity at the International Conference on Biological and Cultural Diversity, where the CBD called attention to BCD with its *Declaration on Bio-Cultural Diversity*, urging parties "to strengthen collaboration and coordination between biological and cultural diversity" (CBD,

⁵⁶ See: Kahn, 2010; González-Gaudiano, 2005; and Hulme, 2009.

2010). The results of this conference were then presented four months later by the governing body of the CBD at the COP10 held in Nagoya, Japan, where the Joint Program between UNESCO and CBD Secretariat (UNESCO-SCBD) was established. With “the CBD acting as global focal point for biodiversity and UNESCO acting as global focal point for cultural diversity,” the UNESCO-CBD was recognized as a “useful coordination mechanism to advance the implementation of the Convention and deepen global awareness of the interlinkages between cultural and biological diversity” (UNESCO, 2011). And while a great deal of research and scholarship needs to be critically engaged to expand the work, understanding the individual and interlinked contributions help ground and grow the body of BCD study.

Defining Biological, Cultural, and Linguistic Diversity

BCD scholarship displays unparalleled losses in recent decades of “biological species, the world’s ecosystems, and human and cultural linguistic groups and their traditional knowledge” (Maffi, 2001; Pretty et al., 2009). The research conducted on issues related to the various manifestations of diversity is quite expansive, entailing entire bodies of scholarship, history, theory, and practice. Fields such as evolutionary biology and the environmental and ecological sciences help highlight biodiversity, while ethnic studies, sociology, and linguistic studies offer aspects of cultural diversity.⁵⁷ These works help strengthen ecological records and further develop informed critical ecopedagogy about our biosphere, in turn assisting in subsequent protection, conservation, and revitalization efforts outside of the academic arena. As emphasized, BCD advances this scholarship through multi, inter, and transdisciplinary methods that merge biological, cultural, and linguistic diversity to display our ecological interconnectivity (Maffi,

⁵⁷ For tables listing academic fields concerned with “the intersection of nature and culture” see: Hong, Bogaert & Min’s (2014) table of “interdisciplinary research,” as adapted from Pretty et al.’s (2009) table of “sub-disciplinary fields.”

2001). To better grasp the value of BCD, the following sections will emphasize the individual contributions of biological, cultural, and linguistic diversity to this integrated field. Although the individual definitions of biological, cultural, and linguistic diversity are varied, countless, and evolving, a few that are useful and appropriate for this work at this time and space are included in the sections hereafter.

Biological Diversity: Threats, Hotspots and Conservation

At magic hour, when the sun is gone but the light has not, armies of flying foxes unhinge themselves from the Banyan trees in the old graveyard and drift across the city like smoke. When the bats leave, the crows come home. Not all the din of their homecoming fills the silence left by the sparrows that have gone missing, and the old white-backed vultures, custodians of the dead for more than a hundred million years, that have been wiped out. The vultures died of diclofenac poisoning. Diclofenac, cow aspirin, given to cattle as a muscle relaxant, to ease pain and increase the production of milk, works—worked—like nerve gas on white-backed vultures. Each chemically relaxed milk-producing cow or buffalo that died became poisoned vulture bait. As cattle turned into better dairy machines, as the city ate more ice cream, butterscotch-crunch, nutty-buddy and chocolate-chip, as it drank more mango milkshake, vultures' necks began to droop as though they were tired and simply couldn't stay awake. Silver beards of saliva dripped from their beaks, and one by one they tumbled off their branches, dead.

-Arundhati Roy, 2017

Scholars, primarily in the sciences, and activists engaged in conservation efforts are notably responsible for sparking the academic study of biological diversity (Franco, 2013). Biodiversity researchers investigate aspects of terrestrial and marine ecosystem such as the variability of life forms present, species and habitat richness, and potential threats (Pretty et al., 2009; DeLong, Jr., 1996). While this research typically forefronts non-human species, much is still conducted for the direct and indirect utilitarian benefits to humans (Neeman, Servis, & Naro-Maciel, 2015).⁵⁸ Hence, biodiversity research is still highly anthropocentric and is typically

⁵⁸ As written in Neeman et al. (2015) re: marine ecosystems, direct utilitarian benefits include “the production of food, medicine, and industrial materials, as well as tourism and recreation,” while indirect benefits include “nutrient

applied and/or beneficial to the interests of first-world people, even though humans are not usually presented as the focal point (Pretty et al., 2009). Moreover, biodiversity research and conservation efforts are often endorsed and supported, as a rich global biodiversity provides humans with food security, livelihood sustainability, modern medicine, regulation and control of infectious diseases, and mitigation of future ecosystem health as a natural buffer against natural disasters (CBD, 2010b).

BCD thus emerged within a couple years of biological diversity research becoming popularized, although biodiversity continued to gain much more momentum and backing outside of academia and activism. Conceived in the mid-1980s by Walter G. Rosen, the term biodiversity is now widely used and varies across discipline (DeLong, Jr., 1996).⁵⁹ The CBD defines biodiversity as:

[T]he variability among living organisms from all sources, including inter alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (CBD, 2010c).

As Michael Benton (2016) writes, biodiversity is more commonly understood as:

[T]he number of species on Earth, sometimes more exactly termed, “global species richness.”

Estimates of global species richness are gathered to more accurately understand the

cycling, coastal protection, and cultural, spiritual, and esthetic values (Borja, 2014). Marine ecosystems also have intrinsic value, meaning they have inherent worth independent from their use by humans and other living organisms. Conserving the biodiversity of marine ecosystems is important because it maintains ecosystem functioning and prevents systems from transitioning into undesirable states that lead to the loss of both direct and indirect benefits that they provide (Borja, 2014; Selig et al., 2014). For these reasons, most conservation strategies for marine ecosystems target biodiversity (Salafsky et al., 2002).”

⁵⁹ For additional information on the historical origins of biodiversity, see Franco (2013): “Although the perception of the variety of life forms is as old as the very self-consciousness of the human species (MAYR, 1998), the concept of biodiversity...was conceived by...Rosen...in 1985, while planning to conduct a forum on biological diversity...The Society for Conservation Biology (SCB) was founded in 1985, and in 1987 the first issue of the journal *Conservation Biology* was published, which soon became the main vehicle for scientific publication and debate on issues related to biodiversity (Sarkar (2002); Groom, Meffe, & Carroll (2006); Meine, Soulé, & Noss (2006); and Lewis (2007), as cited in Franco, 2013).”

complexities of our biological variance on Earth. These biodiversity estimates are often incorporated across several disciplines and beyond the academic arena to assess the contributing factors and consequences of increased biodiversity loss, to measure the influence of these threats on our global ecology, and mitigate and reverse threats via such efforts as hotspot conservation, climate destabilization initiatives, and sustainable development.⁶⁰

Biodiversity is defined in terms of the variability of populations, ecological processes, rare or unusual species, or ecosystems, and the key metrics for both land and marine biodiversity widely range, from studying species richness and abundance, to grouping via taxon, habitat, ecosystem, or the entire planet.⁶¹ DeLong, Jr. (1996) notes an all-encompassing, concise, and singular definition of biodiversity to be used across disciplines would be useful to help streamline research.⁶² Similarly, Caley, Fisher, and Mengerson (2014) argue for a convergence of estimates of global species richness, because the current extent of metrics produce certain inconsistencies and uncertainties in addressing the magnitude of risk and mitigating that risk. Scholars increasingly suggest integrated measures will provide more accurate estimates of biodiversity and better assess and respond to subsequent protection, conservation, and sustainability efforts (Ibid; Marchese, 2015).

Even as it stands, biodiversity research continues to uncover myriad realities of the diversity of life on Earth and the influence of global change, such as anthropogenic pressures that severely intensify ecological declines and shifts. As mentioned earlier in the chapter, BCD research displays endangered species, threatened habitats, dying languages and vast knowledge bases are being depleted at higher than “natural” extinction rates (Pretty et al., 2009; Maffi,

⁶⁰ See: WWF, 2018; Pretty et al., 2009; Myers et al., 2000; and Roberts et al., 2002.

⁶¹ See: Neeman et al., 2015; Tittensor, 2010; Caley, Fisher & Mengerson, 2014; and Marchese, 2015.

⁶² See DeLong, Jr. (1996) for additional definitions of biodiversity.

2001). Biodiversity research helps spotlight the state of endangered species and threatened habitats.

While there is still insufficient global data regarding the whole of biodiversity, especially relating to invertebrates and the deep-sea, current records show that our planet is presently inhabited by estimates of ~8.7 million species worldwide, with approximately 1.2 million species catalogued thus far (Mora, Tittensor, Adl, Simpson, & Worm, 2011), and 15,000 to 20,000 new species described each year (Dirzo & Raven, 2003). In the U.S. alone, estimates suggest that anywhere from one-third to one-half of the total species of organisms have yet to be discovered (Dirzo & Raven, 2003). The International Union for the Conservation of Nature's (IUCN) Red List provides the world's most comprehensive inventory of the global conservation status of biological species and offers a critical indicator of the health of our biodiversity worldwide. With more than 116,177 assessed species thus far, the IUCN's Red List Index (2020) has estimated over 31,000 of these species (27%) are threatened with extinction, including:

- 41% of Amphibians
- 25% of Mammals
- 34% of Conifers
- 14% of Birds
- 30% of Sharks & rays
- 33% of Reef corals, and
- 27% of Selected crustaceans ⁶³

The IUCN Red List is widely used to assign species threat extinction. However, transdisciplinary approaches that further develop critically informed biodiversity patterns will inevitably mature the research, as existing technologies improve and quality global data is more

⁶³ Per Marchese (2015), integration of biodiversity research will extend and evolve its reach to aid effective conservation strategies by, for example, “incorporating genetic data (Rivers et al., 2014), in conjunction with models to detect extinction risk from climate change (Keith et al., 2014) and...identify species at extinction risk using global models of anthropogenic impacts (Peters et al., 2014).”

easily accessible (Marchese, 2015).⁶⁴ Beyond empirical threat estimates, biodiversity research unearths the ways habitat change and losses aggravate species extinction. Most notably, biodiversity loss is exacerbated by direct and indirect drivers such as invasive alien species and anthropogenic pressures such as climate destabilization, high population growth and density, over-exploitation, and environmental degradation.⁶⁵

Since hotspot studies exhibit that “some of the most depleted habitats” are located in the globe’s most biodiverse hotspots, researchers such as Myers et al. (2000) continue to recommend mapping, research, conservation, and revitalization of terrestrial and marine hotspots as a “silver bullet strategy” for restoration, especially because the extent of threats impacting global biodiversity makes it nearly impossible to assist all species under attack. Given the threat of species extinction far outweighs available conservation resources, “conservation-investment” based strategies are forefronted via hotspot conservation as a more realistic, effective, and cost-efficient target.⁶⁶ Biodiversity hotspots have thus been adopted, “as a key strategy for global conservation action, becoming the principal global conservation-prioritization approach,” and receiving over US\$1 billion in conservation-investment since Myers introduced the concept of hotspots in 1988.⁶⁷

To determine hotspots, Myers et al. (2000) focus on species variation as a “readily and recognizable form of biodiversity.” Under these terms, a hotspot is designated both on the basis of endemism, and loss or degree of threat. Hotspots are specifically defined as “areas featuring

⁶⁴ The IUCN’s Red List measured around 45,000 species for its 2008 assessment, which only accounts for 2.7% of the world’s described species (Vié, Hilton-Taylor & Stuart, 2008). In a similar study, the 2018 Living Planet Report’s (LPR) Index, which tracked 16,704 populations of 4,005 vertebrate species found a 60% average of declines in “populations of mammals, birds, fish, reptiles, and amphibians” in just over 40 years (WWF, 2018b).

⁶⁵ See: Nelson et al., 2006; Pretty et al., 2009; Stork & Habel, 2014; and Marchese, 2015.

⁶⁶ See: Marchese, 2015; Jepson & Canney, 2001; and Myers et al., 2000.

⁶⁷ See: Marchese, 2015; Stork & Habel, 2013; and Mittermeier et al., 2011.

exceptional concentrations of endemic species,” which are also simultaneously “experiencing exceptional loss of habitat.”⁶⁸ To qualify as a terrestrial hotspot an area must first, “contain at least 0.5% or 1,500 of the world’s 300,000 plant species as endemics.”⁶⁹ Once an area meets the plant criterion, the degree of threat via habitat loss is measured as a second determinant. To qualify, a hotspot must “have lost 70% or more of its primary vegetation, this being the form of habitat that usually contains the most species, especially endemics.” Rather, a hotspot must be considered threatened, containing 30% or less of its primary vegetation (CI, 2019). So long as an area qualifies by the plant and habitat threat criterion, it satisfies the hotspot metrics. Vertebrates only serve as back-up support.⁷⁰

Per these qualifications, the current research has mapped 36 hotspots globally, with 11 of the first 25 identified hotspots having already lost at least 90% of the primary vegetation, and three having lost 95%.⁷¹ The 36 global hotspots account for 15.9% of Earth’s land surface. However, due to extreme habitat destruction in these regions over the past century “what remains of the natural vegetation in these areas is down to just 2.3% of the world’s land area.”⁷² Excluding the most recently identified, the 35 hotspots maintain 77% of the global total of terrestrial vertebrates, and 43% of vertebrate species found solely within the biodiversity hotspots (Mittermeier et al., 2011; Marchese, 2015). The 35 hotspots collectively harbor as

⁶⁸ See: Roberts et al., 2002; Myers et al., 2000, and Myers, 1988.

⁶⁹ See: Myers et al., 2000; Roberts et al., 2002; and CI, 2019.

⁷⁰ Myers et al.’s (2000) species dimension focus upon vascular plants (comprising around 90% of all plants), as they are considered “essential to virtually all forms of animal life and are fairly well known scientifically.” The researchers explain, “Vertebrates do not serve as an alternative determinant of hotspot status, nor do their endemics have to comprise 0.5% of global totals.” As such, the research includes mammals, birds, reptiles, and amphibians, while excluding fish and also invertebrates, which “are largely undocumented but probably make up at least 95% of all species, the bulk of them insects” (Myers et al., 2000, CI, 2019).

⁷¹ For information on the 36 hotspots see: CI; 2019; Marchese, 2015; Williams et al., 2011; and Mittermeier et al., 2011. For more on the 11 hotspots, see: Myers et al., 2000.

⁷² See: Williams et al., 2011; Marchese, 2015; and CI; 2019.

endemics: 35% of all mammal species, 35% of birds, 59% of amphibians, and 46% of reptiles. If only considering threatened species per the 2008 IUCN Red List, 60% of threatened mammals, 63% of threatened birds, and 79% of threatened amphibians are found exclusively within the 35 identified hotspots (Mittermeier et al., 2011).⁷³

The highest areas of hotspot species diversity are located in tropical ecosystems (Dizon & Raven, 2003; Myers et al., 2000). However, terrestrial hotspots feature several habitat types globally, consisting of large areas such as tropical rainforests and small land masses such as islands (Myers et al., 2000).⁷⁴ And while all environments experience shifts and decline, the top 25 hotspots “face a high risk of elimination”:

[The ecosystems] are so threatened that, having already lost an aggregate of 88% of their primary vegetation, they all seem likely, in the absence of greatly increased conservation efforts, to lose much if not most of their primary vegetation within the foreseeable future (Ibid).

Given the degree of biodiversity threat and associated global impacts, terrestrial hotspot conservation is certainly a useful strategy to protect as many species as possible with the limited available and granted resources. Myers et al. (2000) and organizations such as IUCN and Conservation International continue to suggest that hotspot conservation allows us to prioritize biodiversity efforts in areas where there is the greatest need amid a rapidly declining state of ecological health. Still, the approach has been called out as a simplified shortcut for a more complex issue, which instead requires integrated measures and multi, inter and transdisciplinary

⁷³ The original 25 terrestrial biodiversity hotspots only comprise 1.4% of the Earth’s land surface, yet under the specified metrics contain, “as many as 44% of all species of vascular plants [(133,149)] and 35% of all species in four vertebrate groups [(9,645)]” worldwide. Five major hotspots, the Tropical Andes, Sundaland, Madagascar, Brazil’s Atlantic Forest, and the Caribbean, only comprise 0.4% of the Earth’s land surface, yet contain, “20% and 16%, respectively, of all plants and vertebrates, and 45% of all the hotspots’ endemic plants and vertebrates alike” (Myers et al., 2000).

⁷⁴ Per Myers et al. (2000): “Predominant are tropical forests, appearing in 15 hotspots, and [five] Mediterranean-type zones...Nine are mainly or completely made up of islands; almost all tropical islands fall into one or another hotspot. Sixteen hotspots are in the tropics, which largely means developing countries where threats are greatest and conservation resources are scarcest.”

approaches (Marchese, 2015; Stork & Habel, 2013). For example, some areas known for high biodiversity such as the western Amazon remain largely undocumented. This means conservation will exclusively center on current terrestrial hotspots while excluding other high-biodiversity areas, which inevitably leads to greater threats and extinctions in areas of high-need. Moreover, since plants and vertebrates only make up 6-8% of global diversity, the exclusion of invertebrates (primarily since 80-95% are unknown), the bulk being insects, indicates far more research need be conducted to unearth the role invertebrates play ecologically, such as relationships of mutualism, commensalism, and parasitism that sustain life between and beyond these beings and their ecosystems (Stork & Habel, 2013).⁷⁵

Likewise, biodiversity research and conservation also extend beyond our land. The CBD (2009) states that our “oceans cover 70% of our planet’s surface and represent over 95% of the living biosphere.” Yet estimates reveal that 95% of our ocean remains unexplored, and another 91% of species in our ocean are still awaiting description (NOAA, 2019; Mora et al., 2011). As such, deep-sea biodiversity is sparse and has only recently been included in global biodiversity analyses.⁷⁶

Marine hotspot conservation emerged a little over a decade after terrestrial hotspot focus, to protect marine areas and promote biodiversity recovery. Roberts et al. (2002) presented a study on coral reefs, providing “the first comprehensive global assessment of conservation priorities for an aquatic system,” which led to indispensable attention on marine hotspots (Mittermeier et al., 2011). Despite a lack of consistency between terrestrial and marine data, and

⁷⁵ This also does not take into account the impact of outsiders pushing a green agenda while harming locals in their hotspot conservation efforts, such as seen with the WWF. See more on this in Chapter 4 (pp. 133).

⁷⁶ Per the National Oceanic and Atmospheric Administration (NOAA, 2019) website, only about 35% of the U.S.’s ocean and coastal waters have been mapped with modern methods, such as sonar technology.

See: Marchese, 2015; Mittermeier et al., 2011; and CBD, 2009.

even less documentation on deep oceanic ecosystems, recent concerns over the loss of reef biodiversity has heightened prioritizing marine hotspots with an emphasis on reef endemism and centers of species richness (Marchese, 2015).

Coral reefs are considered some of the most biologically diverse ecosystems on the planet.⁷⁷ They resemble rainforests in numerous ways, including high species diversity and coevolved associations between species, with both regions often considered pinnacles of biodiversity (Reaka-Kudla, 1997). Although they occupy less than one-quarter of 1% (<.025%) of our marine environment (Bryant, Burke, McManus, & Spalding, 1998), reefs are estimated to support 25% of all marine life (EPA, 2018; WWF 2017). Nonetheless, around 20% of reefs have already been “effectively destroyed and show no immediate prospects for recovery” (CBD, 2019), another two-thirds are under serious threat (WWF, 2017), with human activity threatening 58% of the world’s reefs (Bryant, Burke, McManus, & Spalding, 1998; Roberts et al., 2002). Consequently, marine hotspots that target centers of reef endemism, particularly tropical reefs, are a high priority for conservation efforts (Roberts et al., 2002).

While terrestrial hotspots are defined on criteria of endemism and threat, marine hotspots figures are unavailable for loss of primary habitat for tropical reefs (Mittermeier et al., 2011). Based on the same metrics implemented to define terrestrial hotspots, Roberts et al. (2002) determined marine hotspots by endemism and *potential* risks of habitat loss. The research reveals 18 marine hotspots, which only cover 0.028% of the world’s oceans, but contain over 35% of the world’s coral reefs and include 58% to 68% of restricted-range species from four defined taxa.⁷⁸

⁷⁷ See: Reaka-Kudla, 1997; and Bryant, Burke, McManus, & Spalding, 1998.

⁷⁸ Roberts et al. (2002) focus upon four taxa (reef fish, corals, snails, and lobsters) to, “explore the potential consequences of widespread reef degradation for biodiversity and to investigate ways to target conservation action to places where it is most needed and could have the greatest benefits.” This species from four phyla in the geographic ranges were selected as they, “are well-known, good distributional data for them are available on a global scale, and they represent reasonable surrogates for reef diversity as a whole.”

The 10 hotspots cover 15.8% of the world's coral reefs and make up 0.012% of the oceans. Per species representation, the 10 richest centers of endemism include 44% to 54% of the restricted-range species, and between 59% and 75% of all species in the sample, depending on taxon, while all 18 hotspots include from 73% to 96% (Roberts et al., 2002).⁷⁹

Centers of high reef endemism are predominantly located on isolated islands. Many of these centers occur in regions where humans severely affect the reefs. And as Roberts et al. (Ibid) suggest “widespread reef degradation could lead to a gathering wave of extinctions.” Thus, reef hotspot conservation benefits the “broader elements of coral diversity,” although the authors note additional research needs to be conducted as it is likely these impacts will be less effective for other taxa, such as “snails, fish, and lobsters” (Ibid).

Roberts et al. (2002) also advise integrating both marine and terrestrial hotspot conservation. As anthropogenic pressures on reefs display, many threats to reefs originate on land, including “terrestrial agriculture, deforestation, and development [that] are introducing large quantities of sediment, nutrients, and other pollutants into coastal waters, causing widespread eutrophication and degradation of biologically productive habitats” (Ibid). Other major threats to coral reefs include destructive fishing practices, overfishing, and coral mining (WWF, 2017). In analyzing average human threats to reefs from “coastal development, overexploitation, and pollution from [both] marine and land-based sources” via Bryant et al.’s 1998 study, eight of the 18 marine centers of endemism are at medium to high levels of threat, and can be “considered analogous to terrestrial biodiversity hotspots” (Roberts et al., 2002).

Given unnumbered species will be lost without rapid action, a two-pronged conservation strategy

⁷⁹ As used in this work, Roberts et al. (2002) determined 18 marine hotspots based on similar criteria to terrestrial hotspots identifiers, i.e. endemism and threat (per Myers et al., 2000; Pretty et al.; 2002; Mittermeier et al., 2011 and etc.). Conversely, Hobday and Pecl (2014) determine marine hotspots as, “ocean regions that are warming most rapidly.” The data compiled for Hobday and Pecl’s work is used by organizations such as the Global Marine Hotspot Network, both listing 24 marine hotspots as consistent with Hobday and Pecl’s definition around ocean warming.

to protect planetary biota is proposed (Myers et al., 2000; Roberts et al., 2002). This first entails conservation of marine hotspots and reef “wilderness” areas, and necessarily include efforts to mitigate climate destabilization. The second strategy targets both terrestrial and marine conservation due to proximity, since the majority of identified marine hotspots (8 of 10) and centers of endemism (14 of 18) are adjacent to terrestrial hotspots (Roberts et al., 2002).

Similar to terrestrial biodiversity, a major threat to coral reefs is climate destabilization. As yet, 25% of reefs have been destroyed or severely degraded worldwide through problems arising from global warming (Roberts et al., 2002; Hughes et al., 2017). Corals that undergo certain kinds of stress are subsequently weakened and may ultimately die (Bryant et al., 1998; Hughes et al., 2017). One major stress is bleaching, which is “a frequent symptom of pollution-induced stress, as well as...factors such as changes in water temperature, salinity levels, and possibly ultraviolet light” (Bryant et al., 1998). Increased levels of ocean warming above normal summertime temperatures, chiefly intensified by anthropogenic climate destabilization, aggravate bleaching of coral reefs (Hughes et al., 2018; WWF, 2017). From 2015-2016 alone, the third global-scale bleaching event since its documentation in the 1980s occurred, with “record temperatures trigger[ing] a pan-tropical episode of coral bleaching.” This bleaching led to unprecedented loss of corals in the Great Barrier Reef, the world’s largest coral reef located off the coast of Australia (Hughes et al., 2017).⁸⁰ Hughes et al. (2018) found 30% mass reef mortality throughout the entire Great Barrier Reef, and close to 100% bleaching in certain parts such as Princess Charlotte Bay (Hughes et al., 2017). As witnessed with the Great Barrier Reef, an only 1°C warming has fomented recent extreme and often catastrophic global weather events

⁸⁰ Per the CBD website (2019), 16% of reefs “were seriously damaged by coral bleaching in 1998, but of these about 40% have either recovered or are recovering well; about 24% of the remaining reefs are under imminent risk of collapse through human pressures; and a further 26% are under a longer-term threat of collapse.”

that adversely impact marine biodiversity (IPCC, 2018; Weber, 2018).⁸¹ The Intergovernmental Panel on Climate Change (IPCC) released a special report in 2018 conveying that 1.5°C (34°F) global warming above pre-industrial levels is a crucial tipping point. Tittensor et al. (2010) thus suggest the importance of “limiting the extent of ocean warming, and mitigating multiple human impacts...to secure marine biodiversity in the future.”

As with terrestrial qualifiers, marine hotspot criteria of endemism and habitat threat are critiqued for being too narrow in some regards, and/or requiring additional indicators to determine priority conservation. For example, new areas of high marine conservation that use global accounts of species richness paired with human impact have recently been located, which evidence the need to include multiple metrics of biodiversity such as total species richness and species endemism, which “are not always concordant with hotspots of endemism or threat.”⁸² Research also finds that hotspot conservation may prove more worthwhile with “more static marine habitats such as coral reefs and kelp forests,” but the hotspot concept may be less applicable to the lesser-known deep-sea ecosystems due to “highly dynamic physical processes” in oceanic waters (Hazen et al., 2013; Marchese 2015). All considered, even with hotspot conservation successes, we are not tackling deeper-rooted issues of anthropogenic pressures globally. In turn, we may protect the designated hotspots, but can assume that other regions will face similar demise as the overarching paradigms are market-oriented and inevitably forgo the immediate and long-term health of the earth and inhabitants, some more than others.

⁸¹ Note that much marine biodiversity that are impacted by global warming have not been mentioned, such as the rising atmospheric CO₂ levels and the polar vortex dissolving sea ice, and subsequently leading to the sea-level rising, salinity-level declines, stratification, near-shore sedimentation, and impact of such on other-than-human inhabitants. For more information on polar climate destabilization on biodiversity, see Barnes & Kaiser (2009).

⁸² See: Marchese, 2015; Selig et al., 2014; and Orme et al., 2005.

As a whole, hotspot research is proposed to be conducted in conjunction with traditional biodiversity conservation efforts, although promoting hotspot conservation as a silver bullet strategy in complex areas of international policy may be problematically viewed by decision makers as a “cure-all.”⁸³ As the biodiversity crisis is situated “against a background of urgency, irreversibility and scientific uncertainty,” and crafted by the predominantly white global north, it is important to note how these leaders seek fast, efficient, and simple solutions that regularly neglect, silence, and violate BIPOC communities and those at the intersections of marginalization.⁸⁴ Therefore, we need to instead develop common biodiversity objectives that foreground BIPOC and BIPOC at the intersections, since these strategies require different applications across “ecological, political and cultural situations” (Jepson & Canney, 2001). These issues and more convey that although hotspot conservation is valuable, it should not be considered a panacea, but must instead be placed alongside other global conservation strategies (Stork & Habel, 2013; Marchese, 2015).

In review of these brief empirical insights into our earth’s biological diversity, we grasp the magnitude of the issues presented regarding rapid declines of biological diversity and the importance of conservation to global ecological health. Despite current discrepancies and much still unknown, some claim biodiversity loss and namely species extinction is the only definitive and irreversible global environmental change our Earth faces today.⁸⁵ Taking into account anthropogenic activity forcibly driving terrestrial and marine biodiversity loss, a host of scientists indicate that without aggressive change we will inevitably witness the sixth mass extinction on Earth, a time when 75-95% of existing species are lost over an “arbitrarily short”

⁸³ See: Jepson & Canney, 2001; Stork & Habel, 2014; and Marchese, 2015.

⁸⁴ In the following chapter, I will further this discussion per colonial conservation.

⁸⁵ See: Dizon & Raven, 2003; Mittermeier et al., 2011; and Proença & Pereira, 2017.

geological life span (Raup, 1994).⁸⁶ As Myers et al. (2000) indicate, the mass extinction of species “would constitute a problem with far more enduring impact than any other environmental problem,” particularly relating to the dependency of human health and global livelihood upon biodiversity.⁸⁷

Biodiversity research and documentation help offer a glimpse into the state of our earth’s ecology. Regardless of how physically close we are to nature or how frequent our contact, humans require and rely on the natural world to survive. The Living Planet Report (LPR) states that “all human economic activity ultimately depends on services provided by nature,” estimated at around US\$125 trillion globally. Land-based benefits in the Americas alone are estimated at over US\$24.3 trillion, which is equivalent to the region’s gross domestic product (WWF, 2018b).⁸⁸ Considering nature’s economic value to humans, perpetual critical analysis of biodiversity research is essential. This is especially true amid peaked first-world interest in biodiversity conservation, which benefits people in positions of power at the expense of those marginalized – a theme that pervades the text of this dissertation. For example, MNC-sponsored, funded, and/or owned academic research is known to seek profit over certain populations of people, natural environments, and entire ecosystems (Hedges, 2009), and even environmental organizations focusing on global sustainable development initiatives by way of green agendas.⁸⁹

⁸⁶ For more on the sixth mass extinction, see: Leakey & Lewin, 1995; Wake & Vredenburg, 2008; Pretty et al., 2009; Kolbert, 2014; and Ceballos et al., 2015.

⁸⁷ See: Rapport, 2006; Mittermeier et al., 2011; and WWF, 2018b.

⁸⁸ See: Maffi & Woodley, 2010; IPBES, 2018; and WWF, 2018b.

⁸⁹ This includes international initiatives that center development while not doing much for Local and Indigenous Peoples per their articulated needs and rights, which is highlighted re: the WWF conservation efforts in the Congo (pp. 134), and is emphasized via UNESCO-led MDGs that suggest global poverty rates are decreasing while stating “progress is often fragile and temporary” (pp. 136).

Details of specific MNC-sponsored research are included in the sub-section of Chapter 4, titled: *The Ecological Impacts of Greenwashing* (pp. 127).

Every day we learn the extent of the inextricable links of BCD and the need to integrate biological diversity research with cultural and linguistic diversity research. As BCD scholars suggest, “any hope of saving biological diversity, or even recreating lost environments through restoration ecology, is predicated on a concomitant effort to appreciate and protect cultural diversity.”⁹⁰ As hotspot research increasingly displays, if “these problems are inextricably linked, so too are many solutions” (Mittermeier et al., 2011). Therefore, as the ISE emphasized in the *Declaration of Belém*, we need BCD and its specific focus on TEK that is recognized as a powerfully sophisticated, complex, and extensive resource of local biodiversity that should be honored and its holders adequately compensated, protected, and respected for imparting their knowledge systems that support a harmonious cosmos.

Cultural Diversity: Protecting, Revitalizing, and Compensating TEK

Our story remains unwritten. It rests within the culture, which is inseparable from the land. To know this is to know our history. To write this is to write of the land and the people who are born from her.

- Haunani-Kay Trask, 1999

Culture is a highly polysemic word that has transformed over the years (di Leonardo, 2004).⁹¹ Whether we critically analyze ancient empires or dissect our current state, culture and cultural diversity are difficult to define and even more so to protect. This is expressly why Ethnic Studies departments were advocated for and why they continue to need to exist in historically predominantly white institutions (PWI). Culture studies remain a contested terrain among and between activists, Local and Indigenous Peoples, marginalized persons in general, scholars,

⁹⁰ As adapted from Pretty et al. (2009), which cite the sources as: Nietschmann (1992); Stevens (2007); Maffi (2001); Zent (2001); and Pretty (2007a).

⁹¹ Note that in 1952, anthropologists Alfred Kroeber and Clyde Kluckhohn compiled a list of 164 definitions of culture in *Culture: A Critical Review of Concepts and Definitions*.

organizations, governments, politicians, and those representing, supporting, and maintaining the white supremacist hetero-patriarchal socioeconomic, political and cultural world order.⁹² Thus, perpetual critical analysis and BIPOC inclusion are vital to holistically and ethically elevate the knowledge, needs, and rights of those whose cultures are en route to or already fading, dying, and/or being killed (Pretty et al., 2009; Maffi, 2001).

Over the last 70 years, the global decline of cultural diversity has been widely studied in the academy, with efforts for implementation extending beyond educational institutions to address these losses. Cultural diversity scholarship thus influenced world forums that repeatedly emphasized collective rights and international development goals, and alleged to assure inclusive and holistic measures were concretized to benefit the international community. Globally-backed focus promoting and seeking to protect cultural diversity swelled at the conclusion of World War II. UNESCO was established within months of the war's end with publicized hopes of achieving "international peace" and "common welfare" for all people. The concepts of intellectual and moral solidarity were promoted through educational, scientific, and cultural relations, with the pronouncement that political and economic endeavors alone would not cease future warfare. UNESCO led the global cultural charge, intending to preserve "the independence, integrity and fruitful diversity of the cultures and educational systems of the States Members of the Organization" (UNESCO, 1945).

Until the early 1980s, UNESCO held a narrow and traditional view of culture as tied to "arts and literature" (UNESCO, 2002). Following its World Conference on Cultural Policies, UNESCO's 1982 *Mexico City Declaration* redefined culture and spoke to the preservation of both tangible and intangible heritage. The declaration noted that even with scientific and technological advances, peace and security were threatened by "serious economic difficulties,

⁹² Recall Kellner's (1995) articulation of the *contested terrain*, as mentioned in the introduction of this chapter.

[growing] inequality between nations, and many conflicts and grave tensions” that altered humanity’s position and social relations in the world. Education, science, and culture were again declared as “essential for the genuine development of the individual and society.” UNESCO urged establishing closer collaboration among nations “to guarantee respect for the rights of others and to ensure the exercise of the fundamental freedoms...of peoples, and of their right to self-determination” (UNESCO, 1982).

Following the events of September 11, 2001, UNESCO’s *Universal Declaration on Cultural Diversity* was unanimously adopted by its members, “to reaffirm their conviction that intercultural dialogue is the best guarantee of peace and to reject outright the theory of the inevitable clash of cultures and civilizations” (UNESCO, 2001). The organization asserted for the first time that cultural diversity is as “necessary for humankind as biodiversity is for nature,” making its defense “an ethical imperative” UNESCO aligned its aims with the *Universal Declaration of Human Rights*, and expanded its scope of culture as:

the set of distinctive spiritual, material, intellectual and emotional features of a society or social group, and encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs (UNESCO, 2001; 2002).⁹³

UNESCO emphasized cultural diversity as:

a source of exchange, [an adaptive process, and a capacity for expression, creation and innovation]... it is one of the roots of development, understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence (UNESCO 2001; 2002).

Almost 10 years later, the joint program between UNESCO and the CBD Secretariat (UNESCO-SCBD) further supported and advanced the definition of cultural diversity, which is

⁹³ UNESCO continues to use variations of this definition. As written in the Declaration footnotes: “This definition is in line with the conclusions of the World Conference on Cultural Policies (MONDIACULT, Mexico City, 1982), of the World Commission on Culture and Development (Our Creative Diversity, 1995), and of the Intergovernmental Conference on Cultural Policies for Development (Stockholm, 1998)” (UNESCO 2001; 2002).

recognized as diversity in:

- 1) Practices: rituals, production systems and knowledge transmission systems
- 2) Ways of living together: social systems including institutions, legal systems, leadership and tenure systems
- 3) Value systems: religion, ethics, spirituality, beliefs and worldviews
- 4) Knowledge: know-how and skills
- 5) Languages
- 6) Artistic expressions: art, architecture, literature and music (CBD, 2010).

In the last decade, UNESCO-SCBD increasingly noted the inextricable link between BCD, stating that “Biocultural diversity is everywhere and it grows bottom up.” Today, UNESCO-SCBD maintains the only route to achieve biological diversity in sustainable development is “by giving equal value to cultural diversity and the rights of [Indigenous Peoples and Local Communities]” (CBD, 2019b). Both the CBD and UNESCO, among a host of others such as IUCN, UN Environment Programme (UNEP) and World Wildlife Fund (WWF), have partnered with Terralingua’s efforts to sustain BCD “through research, education, policy-relevant work, and on-the-ground action” (Terralingua, 2019). And while these organizations and forums offer important gains for the protection of cultural lands and Local and Indigenous Peoples, many organizations continue to generate strategies and processes for imposing development that are detrimental to protecting the cultural diversity of marginalized groups, Local and Indigenous Peoples, and ecosystems and often endanger BIPOC and intersectional lives. Critical theory and application that advance community-based rights and demands thus help contend with the first-world impositions of these organizations and global forums.

In the neoliberal era, biodiversity conservation and sustainability have received heightened concern. But the preservation of biodiversity and long-lasting ecohealth arrived “long before the birth of [environmental] science and ‘scientific’ [biodiversity] management.” As Parrotta & Trosper (2012) explain, Local and Indigenous Peoples “have managed forests and

associated ecosystems in ways that sustained their livelihoods and cultures without jeopardizing the capacity of forest ecosystems to provide for future generations.” Current critical scholarship focusing on cultural diversity, including a large portion of BCD work, is dedicated to researching, documenting, revitalizing, and safeguarding TEK. As the research displays, TEK, also referred to as Traditional Forest-Related Knowledge (TFRK), Indigenous Knowledge Systems, or Native Science, include immemorial histories of ancestral wisdom continuously passed down, including intimate and exhaustive ecological knowledge (Rinkevich, Greenwood, & Leonetti, 2011). As Berkes (2009) explains, TEK should not be regarded simply as content, but as “a process, a way of observing, discussing, and making sense of new information – [I]ndigenous way of knowing.” TEK is generational acquisition and transmission of the content of knowledge (e.g. of landscapes, biodiversity, and other-than-human inhabitants) and a process of knowing (e.g. sensitivity to read critical signs) (Berkes, 2009). To better grasp the complexities of these knowledge systems, Rinkevich, Greenwood, & Leonetti (2011) offer a clear working definition:

[TEK is] the evolving knowledge acquired by Indigenous and [Local Peoples] over hundreds or thousands of years through direct contact with the environment. This knowledge is specific to a location and includes the relationships between plants, animals, natural phenomena, landscapes and timing of events that are used for lifeways, including but not limited to hunting, fishing, trapping, agriculture, and forestry. TEK is an accumulating body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (human and non-human) with one another and with the environment. It encompasses the [knowledge systems] of [Local and Indigenous Peoples] which includes ecology, spirituality, human and animal relationships, and more.

Even though such definitions can be useful in engaging critical culture studies, we need to refrain from exoticizing, romanticizing, and placing “unrealistic expectations” on TEK and the holders of such knowledge. Local and Indigenous Peoples epistemologies and ontologies are not

monolithic. The people and communities have varying relationships with nature that often differ from westernized notions of conservation and preservation, especially in our evolving, modernized, and interconnected world (Berkes, 1999; Maffi & Woodley, 2010). However, TEK retain immense value for the longevity of a healthy BCD. As numerous scholars reveal, “early human population’s possessed high levels of cultural diversity dependent on and supportive of high levels of biological diversity.”⁹⁴ And this remains the case, as areas where there are Indigenous Peoples are also rich in biodiversity, and where biodiversity is rich, there are usually Indigenous Peoples.⁹⁵

Those that practice TEK as defined above, tend to honor and value human life, other-than-human beings, and natural environments as the reciprocal relationships paired with a grasp of the urgency of a unified cosmos fosters propitious coexistence among and between environments and inhabitants (Parrotta, Fui, Jinlong, Ramakrishnan, & Yeo-Chang, 2009). Such TEK include experiential intelligence about local terrains and inhabitants, and communicate everything from weather patterns, to farming techniques, and natural, local botanical remedies. Much of this ancestral knowledge is ecologically conscious, mindful, and accommodates shifting “environmental, social, economic and political conditions” to foster balance and harmonious ecological vitality for present and future generations. The dynamic relationships these Local and Indigenous Peoples nurture with inhabitants and environments are responsive and adaptive, and even ensure beneficial provisions of both “tangible” access to “foods, medicines, wood and other non-timber forest products, water, and fertile soils,” and “intangible” knowledge such as “spiritual, social and psychological health” (Parrotta et al., 2009). As Rapport (2006) summarizes, “healthy ecosystems are an essential condition of healthy people, healthy

⁹⁴ See: Gadgil, 1987; Posey & Dutfield, 1996; and Berkes, 1999.

⁹⁵ See: IUCN, 1997; Posey & Dutfield, 1997; and Berkes, 1999.

communities, and sustainable livelihoods.” As recent evidence displays, human exposure to nature positively influences our physical and mental health, whereas the degradation of ecosystems and cultural diversity are conversely related to destructive health outcomes, influencing “loss of food security, the spread of human pathogens, and emergence and resurgence of infectious disease and psychological ills” (Pretty et al., 2009; Rapport, 2006).

Although colonization, globalization, and urbanization have altered landscapes and orientations to the world, Local and Indigenous Peoples have consistently protected, cultivated, and maintained biodiversity for centuries worldwide via TEK and cultural practice, often “in ways western science still does not understand.”⁹⁶ Many Local and Indigenous Peoples “interact with biological diversity on a daily basis, [and] their ever-evolving values, knowledge and perceptions strongly [center] on nature” (Pretty et al., 2009; Berkes, 2008). They particularly have a stake in protecting local resources from extraction and destruction in areas where they depend long-term and are responsible for the natural environment to provide resources and livelihood (Posey & Dutfield, 1997; Berkes, 2008). As such, Indigenous and Community Conserved Areas (ICCAs) are often protected “based on multiple objectives, including sustainable use and livelihood needs, cultural value, self-governance...economic development, [and] biological conservation” (Pretty et al., 2009; Berkes 2009).

These natural environments are home to a diverse array of “cultural archives” that hold “local culture and human history,” since “cultural processes, activities and [knowledge] systems” habitually take place and develop in these physical spaces (Pretty et al., 2009; Milton 1999). And because the relationships Local and Indigenous Peoples cultivate with the ecosystems they are a part of “take a long time to establish” they “are tremendously difficult to recover once lost”

⁹⁶ See: Clay, 1988; Scheer, 2019; Agnoletti & Rotherham, 2015; Pretty et al., 2009; Berkes, 1999; Posey & Dutfield, 1996; and Gadgil, 1987.

(Maffi, 2001). This co-evolution and interaction between humans, other-than-human inhabitants, and natural environments as living entities coexisting alongside one another “has generated local ecological knowledge and practices: a vital reservoir of experience, methods, and skills that help different societies to manage their resources” (CBD, 2010).

As Pretty et al.’s (2009) BCD research articulates, the sense of connection humans feel with nature, based on different needs and purpose, influence our relationships with and to nature. Human communities “that feel a weak sense of connection” to nature perceive selves as separate from or even “dominant over nature,” which has translated into many first-world induced anthropogenic disasters such as primary and secondary impacts of resource extraction and overconsumption (Pretty et al., 2009; UNEP, 2016). The authors find “unparalleled losses in biological and cultural diversity in recent decades” arising from varying, common anthropogenic drivers that frequently motivate the decline of BCD and produce potential harmful consequences. These include but are not limited to: “[Modernization of services that are culturally inappropriate such as healthcare and education, which lead to language erosion, decreases in cultural knowledge transfer, and shifts in local knowledge bases; Privatization of lands and urban migration, which influence shifts away from traditional resource management (often at the cost of biodiversity), erosion of place based cultures, and cultural collapse; Globalization of traditional foods systems, which motivate loss of ecological knowledge, and decline in biodiversity; Livelihood diversification and resource commodification, which create shifts in local knowledge bases, and motivate aspirations for consumer lifestyles; and Extreme natural events and environmental destruction, which drive rapid biodiversity loss]” (Pretty et al. 2009).

In contrast, “those feeling a strong sense [of connection] recognize no distinction between nature and culture.” The latter tend to know self as intimately tied to the land they are

based on, and as “interdependent components of nature” that are part of a “continuous system,” with the relationship “so intrinsic that it goes unspoken.”⁹⁷ These communities tend to connect with and utilize natural resources in more sustainable ways than western modes, and help build the ecological integrity of a space as the earth is considered living, home, and provider of life (Pretty et al., 2009). Such TEK counter ethics of rapacity, and instead advocate cosmic orientations that protect ecosystems as valued and/or sacred. And even though “pre- and non-industrialized human cultures may have a lesser ecological footprint,” they still significantly influence the landscapes in which they reside and gain their sustenance (Pretty et al., 2009).

While conservation efforts often refer to a return to a natural environment untouched by humans as the ideal or utopian state, humans have always made use of, adapted, and modified our ecosystems directly and indirectly due to our “resource dependent livelihood practices” (Pretty et al., 2009). As Maffi & Woodley (2010) explain, some research has shown how “major ecosystems such as tropical forests, commonly thought of as the quintessential ‘pristine’ environments, actually bear the mark of vast anthropogenic alterations brought about by resident [Indigenous] populations over long periods of time.”⁹⁸ This burgeoning discourse around human relationships with and impacts on environments and ecosystems across the span of time can help counter the belief in total abandonment of nature as a more organic evolution (Angoletti & Rotherham, 2015). As the research exhibits, BCD has and will continue to flourish through balanced, harmonious ecological interactions between humans, other-than-human beings, and ecosystems, paired with integrated research, and ethical collaboration and practice (Maffi & Woodley, 2010; Agnoletti & Rotherham, 2015).

⁹⁷ See: Pretty et al., 2009; Milton 1998; and Berkes 2004.

⁹⁸ See: Heckenberger et al., 2003, 2007, as cited in Maffi & Woodley, 2010; and Pretty et al., 2009.

As Berkes (2009) writes, Local and Indigenous knowledge systems seem to develop environmentally holistic views through the consideration of a “large number of variables qualitatively,” while science tends to consider a “small number of variables quantitatively” (Berkes, 2009). Valuing Local and Indigenous Peoples Knowledge Systems to the same degree as the “science-based perspectives of researchers” allows for a co-production of knowledge that protects and promotes the integrity of BCD (Davidson-Hunt & O’Flaherty, 2007; Berkes, 2009). For example, a range of “Indigenous groups in Canada...welcomed a dialogue with science to help co-produce locally relevant knowledge” in various areas, such as: “[resource management and planning; environmental contaminants; community health; climate change; and protected areas and biodiversity conservation].”⁹⁹ Such integration of TEK with science, with each retaining its own integrity, is driven by dialogue and partnership that meets the mutual benefits and needs of both (Berkes, 2009).

In spite of such efforts, the ongoing amassed losses of global languages and associated TEK indicate the magnitude of cultural diversity decline (Rapport, 2006; Maffi 2001). Records of the dual erosion of biological and cultural diversity unearth the ways that BCD are deeply interrelated, and how each inevitably influences the life and vitality of the other (Maffi, 1998). As the growing body of BCD research displays, diverse cultural practices and knowledge systems “are central to the management of biological diversity.” Despite unique challenges in conserving “nature alongside human cultures,” any hope for protecting either requires converging biological, cultural, and linguistic diversity research through such efforts as BCD work (Pretty et al., 2009).

⁹⁹ As adapted from Berkes (2009), which cite the sources as: Davidson-Hunt & O’Flaherty (2007), Berkes et al. (2001), Parlee et al. (2005), Berkes & Jolly (2001), Peloquin & Berkes (2009), Davidson-Hunt & Berkes (2006), and Berkes et al. (2007).

Yet first-world anthropogenic stresses increasingly threaten the persistence of species and the ecosystem services that support human communities, creating ecological breakdown such as cultural diversity loss, environmental degradation, and declines in biodiversity (Rapport, 2006; Maffi, 2001). And cultural diversity is vital to ecological health. Its loss influences a “deleterious feedback loop” that impacts the livelihood and wellbeing of all life forms on this planet (Maffi & Woodley, 2010). Further, aggravated loss of TEK is the annihilation of entire cultures, histories, and ways of moving through the world; it is loss of ancestral knowledge that holds boundless wisdom outside of the status quo regarding the local inhabitants and environments, which can markedly contribute to the sustenance and prosperity of all life. This is especially detrimental on the local stage, but holds grave implications of such loss on national and global levels considering the inextricable link between biological and cultural diversity, i.e. local medicine, health, nutrition, weather patterns, farming, knowledge of other-than-human beings, housing, spiritual and communal practices, art, BCD hotspots, and other known and unknown TEK.

The importance of sharing knowledge across boundaries is evident. As the *Declaration of Belém* relayed, alongside conserving BCD, it is integral we learn from and value Indigenous Knowledge Systems, and develop procedures to compensate Local and Indigenous Peoples for utilization of their TEK and biological resources (Posey & Dutfield, 1996). The danger in these alliances is the eventual lack of need for the original holders of this knowledge or said directly: the erasure of Peoples’ and cultures once their knowledge is recorded, utilized, and/or rendered useless. For example, in 1989, Principe estimated “the market value of plant-based medicines...sold in developed countries amounted to \$43 billion in 1985. Although many of these medicines were first used by Indigenous Peoples “[much less than 1 percent] has ever been returned to the source communities” (Posey & Dutfield, 1996).

Outside of stealing intellectual property and TEK, this erasure exists physically as well. This is no more vivid than in the continued violence directed against individuals who opt to take a stand for their basic rights, as is visible via the 2016 assassination of the vocal Honduran environmental activist and Indigenous leader Berta Cáceres (Tramel, 2017); the unarmed Water Protectors who were met with militarized police violence amid the North Dakota Access Pipeline (NoDAPL) movement from 2016-2017 (Grossman, 2018); the political execution of human rights activist Marielle Franco in 2018, reputable for advocating for women and LBGT rights and denouncing unjust police violence directed at Black teens in the favelas of Brazil (Londoño, 2019); and the murder of Indigenous forest defender Paulo Paulino Guajajara, who was killed by illegal loggers on the Araribóia reservation in Brazil's Maranhão state protecting his Indigenous land at the close of 2019 (McCoy, 2019).¹⁰⁰

We must therefore maintain an ethical stance that values the lives of BIPOC and compensates the extensive knowledge and resources they have cultivated and willingly choose to share (Posey & Dutfield, 1996). To work toward guaranteeing BIPOC are afforded an opportunity to live a dignified life and their universal human rights are guaranteed, it is useful to define the “bundle of rights” as written in such seminal documents as the *Declaration of Belém*, which relate to the “protection, compensation, and conservation” of Local and Indigenous Peoples, traditional resource rights (TRR) can be understood as follows:

The term “traditional” refers to the cherished practices, beliefs, customs, knowledge, and cultural heritage of indigenous and local communities who live in close association with the Earth; “resource” is used in its broadest sense to mean all knowledge and technology, esthetic and spiritual qualities, tangible and intangible sources that, together, are deemed by local communities to be necessary to ensure healthy and fulfilling lifestyles for present and future generations; and “rights” refers to the basic inalienable guarantee to all human beings and the collective entities in which they choose to participate of the necessities to

¹⁰⁰ More on the discussion of Paulo Paulino Guajajara is discussed via Chapter 4, in the sub-section entitled: *The Ecological Impacts of Greenwashing* (pp. 132).

achieve and maintain the dignity and well-being of themselves, their predecessors, and their descendants (Posey & Dutfield, 1996).

All said, if BIPOC want to continue their way of life and not participate in modern capitalism and neoliberal globalization, it is their right to be able to live based on their own knowledge systems and orientations to the world without being displaced and relocated to reservations. As studies relay, many Local and Indigenous Peoples ultimately die without control of their own development and land rights. Indeed, “progress can kill” (Woodman & Grig, 2015). Mindful care must thus be taken to not influence or force BIPOC to assimilate into dominant systems that alter their entire ways of life and knowing, without their explicitly voiced desire for such, and that their rights to a dignified life are protected, promoted, and maintained as they so choose without their cultures and their lives being endangered (Parrotta et al., 2009). As such, when conducting work surrounding culture, we must perpetually address the historicity of colonization and settler colonialism. In doing so, the efforts can more equitably and justly work to protect the people and cultures that are systemically and systematically harmed, plundered, driven to deteriorate, and/or annihilated.

In summation, a great deal of critical cultural research has been conducted and has allowed for the development of a wide range of work such as restoring TEK, language revitalization, BCD research and case studies, not to mention the continued development of Ethnic Studies programs and works focusing on CRT. Nonetheless, tracing the origins of culture and cultural diversity research offers insight into the current state, and reveals gaps and areas that require deep critical analyses and application moving forward. Any efforts for thriving human, other-than-human, and/or nature’s survival require further developing BCD per the communities most negatively impacted to assure the preservation, conservation, and sustainability of the “various manifestations of diversity of life” (Maffi, 2001).

Linguistic Diversity: From Loss to Reclamation

Each of us is here now because in one way or another we share a commitment to language and to the power of language, and to the reclaiming of that language which has been made to work against us. In the transformation of silence into language and action, it is vitally necessary to teach by living and speaking those truths which we believe and know beyond understanding. Because in this way alone we can survive, by taking part in a process of life that is creative and continuing, that is growth... The fact that we are here and that I speak not these words is an attempt to break that silence and bridge some of those differences between us, for it is not difference which immobilizes us, but silence. And there are so many silences to be broken.

- Audre Lorde, 1977

The discourse surrounding the threat of a sixth mass extinction tends to center non-human species and the Earth's biodiversity. However, the rapid loss of many languages the world over evidences a parallel crisis of extinction is transpiring.¹⁰¹ Estimates suggest that more than half of the world's languages will disappear or at least not be learned by the year 2100.¹⁰² What is more, the body of linguistic work accumulated over the years, namely due to myriad social, economic, and political realities, discloses the same message globally: "[I]ndigenous and minority languages [are] disappearing at an alarming and accelerating rate, [and are being] replaced by a small number of ever-expanding, majority languages" (Maffi, 2005).

UNESCO's (2009) World Report on Culture explains that languages are a form of communication that also "represent the very fabric of cultural expressions, the carriers of identity, values" and knowledge systems. Nettle (1999) offers three related perspectives from which linguistic diversity is often viewed: language diversity or richness, phylogenetic diversity,

¹⁰¹ See: Harmon, 2002; Sutherland, 2003; Pretty et al., 2009; and Krauss, 1992.

¹⁰² Skutnabb-Kangas (2003; 2009) cites, a number of realistic optimistic estimates suggest half of current oral languages will have disappeared or at least not be learned by children around the year 2100, while more realistic pessimistic research estimates only 10 percent (or even 5 percent) of today's languages will be left as vital, non-threatened by 2100.

For more see: ECOSOC, 2005; 2016; UNPFII, 2016; McCarty, Romero-Little, Warhol, & Zepeda, 2011; Skutnabb-Kangas, 2009; 2003; Maffi, 2005; UNESCO, 2003; and Krauss, 1992.

and structural diversity.¹⁰³ Using this framework, Harmon & Loh (2010) define linguistic diversity as “the number of languages and the evenness of distribution of mother-tongue speakers among languages in a given area” (sans phylogenetic and structural diversity).¹⁰⁴ Under this definition, the pair’s key findings almost a decade ago revealed a one-fifth decline of both the globe’s linguistic diversity (20 percent) and the diversity of the world’s Indigenous languages (21 percent) from 1970–2005.

Noting language is utilized as a proxy for cultural diversity (Pretty et al., 2009; Maffi, 2005), the rates at which Indigenous languages are increasingly disappearing indicate that Indigenous cultures are simultaneously under extreme threat of decline. Since TEK about the local ecology is encoded in the languages of Local and Indigenous Peoples, “the sustainability of life depends on language” that informs both cultural practices and biological processes (Dodman, 2014). The loss of language thus influences “the erosion of cultural values, knowledge, and practices relevant to the environment,” and the dwindling of linguistic diversity “hastens the killing of knowledge about how to maintain biodiversity” (Maffi & Woodley, 2010; Skutnabb-Kangas, 2009). The first-world and global benefits of “language reclamation” relating to biodiversity and sustainability are transparent (McCarty & Nichols, 2014). However, language is central to “human rights and fundamental freedoms” (ECOSOC, 2018; HDR, 2004).

Understanding Indigenous and minority languages are under extreme threat, BIPOC-led efforts and knowledge pertaining to language and culture endangerment, preservation, reclamation, and

¹⁰³ Per Harmon & Loh (2010), these three related perspectives are defined as such *language diversity* or *richness*: the number of different languages spoken in a given geographical area; *phylogenetic diversity*: the number of different lineages of languages found in an area; and *structural diversity*: the variation found among structures within languages.

¹⁰⁴ This particular definition of linguistic diversity was developed for the purpose of Harmon & Loh’s (2010) study. The pair used Terralingua’s Index of Linguistic Diversity (the first quantitative measure of global trends in linguistic diversity) as a quantitative measure, with the database containing “information from nine editions of *Ethnologue* and five other compendia of speaker numbers.”

appropriate compensation are requisite, but at present remain marginalized (Posey & Dutfield, 1996; ECOSOC, 2016).

Quantifying languages are considered “one of the most significant and authoritative” modes “that expert knowledge about sociolinguistic change” reaches policymakers and planners Moore, Pietikäinen and Blommaert (2010). And while useful on various levels, this expert knowledge about language loss and endangered languages typically arrive from an outside perspective rather than the families and communities who are reclaiming and revitalizing their mother tongues. Although language revitalization feels daunting and often hopeless due to magnitude of loss reported, such commodification and statistification of languages turns languages and their speakers into dehumanized, bounded, “easy-to-handle, closed and finite artefact[s]...to be neatly separated from other similarly artefactualized languages and can thus be listed, catalogued and ordered within such universalizing constructs.” This in mind, Moore, Pietikäinen and Blommaert propose humanizing the complexities of languages beyond *Counting the Losses*, i.e. “quantifying, counting, and ranking according to ‘size.’ The authors offer an “alternative vision that centres not on distinct, named, countable languages, but on speakers and repertoires, and on the actual resources that speakers deploy in actual context” (Ibid).

Beyond the inability for numbers to capture and contextualize the complexities of language and speakers, there is still immense value in utilizing figures when they “provide a strong argument in favour of the preservation of unique cultural heritage” (Ibid). That said, while the exact numbers of languages and speakers are not and cannot be ascertained (Skutnabb-Kangas, 2018), nuanced records of the world’s languages that offer information on aspects of language development, vitality, and endangerment are provided by such resources as *Ethnologue*

and UNESCO's *Atlas of the World's Languages in Danger*.¹⁰⁵ The latest edition of *Ethnologue* lists 7,111 known living languages worldwide (Eberhard, Simons, & Fennig, 2019). The half-century worth of compiled data repeatedly display that a significant number of these known languages are endangered and disappearing at an increasingly rapid rate.¹⁰⁶ Only a decade ago, UNESCO's *Atlas of the World's Languages in Danger* listed around 2,500 languages (among which 230 languages have gone extinct since 1950) were "approaching the generally-accepted estimate of some 3,000 endangered languages worldwide" (Moseley, 2010). This number is consistent with the 2019 edition of *Ethnologue*, which lists 2,895 (>40 percent) of all languages as endangered, 1,909 (>26 percent) as in trouble, and 986 (>13 percent) as dying (Eberhard, Simons, & Fennig, 2019b).¹⁰⁷

As displayed in the table below, a review of the 2019 edition of *Ethnologue* shows that over 94 percent of the world's people (over 6.9 billion) speak only 407 (5.7 percent) of the

¹⁰⁵ While studies of language change have been engaged for some time by linguists and can often be said to be one of the roots "of the modern discipline of linguistics," interest in language disappearance emerged in the late 19th century (Maffi, 2002). In 1951, the first major encyclopedic language reference publication emerged, when Dr. Richard S. Pittman founded *Ethnologue* to begin sharing language development and research with colleagues and scholars worldwide. At the time, Pittman indexed 46 languages or groups of languages; by 1969, Pittman had listed 4,493 languages. These numbers have steadily increased and shifted since the original articulation, including 20,000 individual changes from 2018 to 2019 alone (Eberhard, Simons, & Fennig, 2019b).

¹⁰⁶ See: Pretty et al., 2009; Sutherland, 2003; Harmon, 2002; and Krauss, 1992.

¹⁰⁷ Simons & Fennig's (2017) contributions as the editors to *Ethnologue* help categorize languages per Lewis & Simons (2010) Expanded Graded Intergenerational Disruption Scale (EGIDS).

As such, languages are listed as "endangered" via two dimensions, "the number of *users* who identify with a particular language and the number and nature of the *uses* or functions for which the language is employed. A language may be endangered because there are fewer and fewer people who claim that language as their own and therefore neither use it, nor pass it on to their children. It may also, or alternatively, be endangered because it is being used for fewer and fewer daily activities and so loses the characteristically close association of the language with particular social or communicative functions."

Languages are categorized as "in trouble" when "intergenerational transmission is in the process of being broken, but the child-bearing generation can still use the language... Since parents can still use the language, it is not too late to restore natural intergenerational transmission in the home."

Similarly, "dying" languages are determined when "the child-bearing generation is no longer able to transmit the language to the next generation, since the only fluent users (if any remain) are above that age. Revitalization efforts would need to develop mechanisms outside the home in order to transmit the language" (Simons & Fennig, 2017).

world’s 7,111 known languages (Eberhard, Simons, & Fennig, 2019c).¹⁰⁸

Distribution of world languages by number of first-language speakers

Population range	Living languages			Number of speakers		
	Count	Percent	Cumulative	Total	Percent	Cumulative
100,000,000 to 999,999,999	8	0.1	0.1%	2,829,205,530	40.46101	40.46101%
10,000,000 to 99,999,999	86	1.2	1.3%	2,797,265,640	40.00423	80.46523%
1,000,000 to 9,999,999	313	4.4	5.7%	985,460,876	14.09326	94.55850%
100,000 to 999,999	977	13.7	19.5%	310,434,917	4.43959	98.99809%
10,000 to 99,999	1,812	25.5	44.9%	62,071,471	0.88770	99.88578%
1,000 to 9,999	1,966	27.6	72.6%	7,510,447	0.10741	99.99319%
100 to 999	1,042	14.7	87.2%	463,752	0.00663	99.99982%
10 to 99	305	4.3	91.5%	11,923	0.00017	99.99999%
1 to 9	114	1.6	93.1%	465	0.00001	100.00000%
0	314	4.4	97.6%	0	0.00000	100.00000%
Unknown	174	2.4	100.0%			
<i>Totals</i>	7,111	100.0		6,992,425,021	100.00000	

Image: *Ethnologue.com* (Eberhard, D.M., Simons, G.F., & Fennig, C.D., 2019c).¹⁰⁹

The largest eight languages alone, known as “majority languages,” are spoken by over 2.8 billion people worldwide, accounting for around 40 percent of the global population of known first-language speakers.¹¹⁰ To supplement Skutnabb-Kangas’ (2003) research with the 2019 *Ethnologue* numbers, over 94 percent of the world’s known spoken languages have fewer than 1 million first-language speakers, and more than 80 percent have less than 100,000 speakers. Over half of the known languages are spoken by communities with fewer than 10,000 speakers, while a more than a quarter of all known languages are spoken by communities comprising less than

¹⁰⁸ The current global population count is around 7.5 billion per the U.S. Census Bureau (2019). However, the 2019 *Ethnologue* lists the total population of first-language speakers at 6,992,425,021, which leaves over 300 million people unaccounted. The numbers provided herein align with the number of speakers as presented via Eberhard, Simons, & Fennig’s (2019) edition of *Ethnologue*, rather than the total global population.

¹⁰⁹ Note that these numbers are altered on an annual basis based upon new data gathered.

¹¹⁰ Since Austin’s 2008 book, over 200 languages have been added that may ultimately alter the data to a small degree. As Austin wrote then, 96 percent of the world’s people speak 4 percent (275 languages) of all known languages globally (McCarty & Chen, 2017; Austin, 2008).

1,000 speakers.¹¹¹ More specifically, the present *Ethnologue* figures reveal that there are 1,949 living languages (>27 percent) with less than 1,000 first-language speakers (Eberhard, Simons, & Fennig, 2019c). And as Harmon (1995) suggests, virtually all languages with fewer than 1,000 speakers are under threat of extinction (Maffi, 2001).

These numbers in mind, Indigenous Peoples speak the majority of the world's 7,111 languages, although they make up less than 5 percent (about 370 million worldwide) of the global population (IYIL, 2018).¹¹² Nevertheless, the UN's Permanent Forum on Indigenous Issues (UNPFII) expressed to the UN General Assembly (UNGA) in 2016 that around "40 percent of the world's [then] estimated 6,700 languages were in danger of disappearing – the majority belonging to [Indigenous Peoples]." The UNPFII (2016) indicates that every other week one Indigenous language dies, and as the last fluent speaker of a language passes on...with that person goes literally hundreds of generations of traditional knowledge encoded in these ancestral tongues."¹¹³ This is especially dangerous considering the historical and present state of Indigenous competencies and cultures, which are rooted in rich oral traditions (McCarty & Nicholas, 2014). And since Indigenous languages are "critical markers of the cultural health of [I]ndigenous Peoples" the threats to Indigenous languages also threaten the lives of Indigenous Peoples themselves (UNPFII, 2016).

Such vigorous research offers stark insight into the current state of language decline and consequently loss of TEK, which diminish for numerous reasons. On a fundamental level,

¹¹¹ See: Eberhard, Simons, & Fennig, 2019c; Austin, 2008; Skutnabb-Kangas, 2003; and Harmon, 1995.

¹¹² Indigenous Peoples make up a small percent of the global population, but account for 15 percent of the lowest SES, live across 90 different countries and represent 5,000 various Indigenous cultures (IYIL, 2018). Clearly, language disappearance is directly associated with death of culture and Peoples, which translates into losses of greater magnitudes beyond which these numeric decreases are able to convey.

¹¹³ This aligns with Crystal's (2000) estimates that there are approximately 26 language extinctions annually.

For more, see: Living Tongues, 2019; Harmon & Loh, 2010; and Scheer, 2019.

popularly discussed and often interrelated factors influencing language loss include: elders and community members passing; remaining fluent users above the child-bearing age; small and diminishing populations of first-language speakers; fewer people claiming the language as their own, limiting its use, and ceasing inter-generational transmission; and restricted or decreased use for daily activity thus losing association “with particular social or communicative functions” leading to the phenomenon known as “extinction of experience.”¹¹⁴ Languages also disappear and are transformed through limited documentation (LD&C, 2019) beyond diminishing language inheritance, storytelling, and/or testimonio, and/or culture-specific terms, concepts, and practices that lack equivalence and thus are “untranslatable” (Kashgary, 2011).¹¹⁵

Delving deeper, the body of linguistic research unmask that cultural assimilation and language loss increase as lands and people continue to be colonized, settled upon, and altered with impunity via direct and indirect results of first-world efforts.¹¹⁶ The UNPFII (2016) indicates that “[g]lobalization and the rise of a small number of culturally dominant languages have exacerbated the threat to [I]ndigenous languages.” For instance,

¹¹⁴ See: Maffi, 2002; 2001; and Simons & Fennig, 2017.

¹¹⁵ My native tongue, Farsi is the main language I speak with my grandmother, and I use it throughout conversations with my parents and loved ones as I swim back and forth between worlds. Living in this country since three-years-old, I understand and use English regularly and much more proficiently than Farsi, predominantly for mobility purposes. Even with an expansive fluency in both languages, I can relay from personal knowledge that some words in Farsi do not hold an equivalent in English, nor are they easily translatable. With some words, there really is no way to completely convey the dynamics and associated meaning, as it moves beyond a simple meaning of a single *word* and into an entire cultural system of knowing, moving, and thinking through the *world*, as Freire discussed. In short, beyond the actual language itself, cultural knowledge systems, value systems, ways of life, and practices are being lost, as well as knowledge of and actual biological elements in a global urbanized, colonized world, where everything from resource extraction to farming practice is shifting toward first-world created, homogenized, market-driven needs that feed empire.

Also, note that Farsi is the top 31st language spoken in the world with over million speakers, but I am witnessing my parents lose their mother-tongue, and encountering even more lost on myself without access to Farsi-immersion schooling throughout my academic career. This loss will inevitably continue as generations evolve, especially via immigration to the U.S. through assimilation and its association with desired socioeconomic mobility (Eberhard, D.M., Simons, G.F., & Fennig, C.D., 2019).

¹¹⁶ See: UNPFII, 2016; Maffi & Woodley, 2010; Pretty et al., 2009; HDR, 2004; and Maffi, 2001.

migration, integration into today's globalized market economy, and the subsequent need to acculturate into dominant ways of life for mobility purposes influence shifts toward dominant trade languages necessary in the marketplace and the ensuing "homogenization of cultural diversity" (Maffi & Woodley, 2010). Forced or induced pressures to assimilate into the mainstream fuel the "loss of local decision-making capacity and self-sufficiency," and are a major contributing factor to loss of language, TEK, and culture (Maffi, 2001). This includes the push toward majority language known as "language shift."¹¹⁷ As Maffi (2001) explains, as "a given language becomes increasingly restricted in use" its transmission is regularly interrupted and abandoned because speakers shift, often involuntarily, to another "generally dominant, more prestigious, more powerful language."

In extreme but commonplace instances, language transmission ceases as populations are decimated due to "natural disasters, disease, war, or genocide" (Maffi, 2002). Myriad socioeconomic, political, and cultural pressures "have influenced loss of Indigenous Peoples lands" (Maffi, 2001). And "When [I]ndigenous [P]eoples lose their land, they *lose their language*," and thus their TEK, complex social, cultural, and political systems (ECOSOC, 2005). Despite the reality that Local and Indigenous Peoples "may integrate and recover meaning to their lives," in the midst and aftermath of such havoc, this influences devastating deteriorations of "physical, psychological, social and spiritual well-being" of those affected (Maffi & Woodley, 2010). This sentiment was animated by the Royal Commission on Aboriginal Peoples (1996) over twenty years ago in relaying that "Many Aboriginal peoples are suffering not simply from specific diseases and social problems, but also from a depression of spirit resulting from 200 or more years of damage to their cultures, languages, identities and self-respect" (ECOSOC, 2005;

¹¹⁷ See: Maffi, 2001; Maffi & Woodley, 2010; and UNPFII, 2016.

Magga, Nicolaisen, Trask, Dunbar, & Skutnabb-Kangas, 2005). And as Burger (1990) so succinctly stated, “The removal of [F]irst [P]eoples from their land can be likened to genocide in slow motion” (ECOSOC, 2005). This point is enormously important and thoroughly ignored in dominant cultures. Rather, dominant societies are utterly indifferent to these consequences – consequences that they themselves have inflicted and perpetuated. Therefore, neocolonial efforts, globalization, industrialization, and urbanization dramatically aggravate the loss of language, TEK, and culture, with BIPOC bearing an unequal burden historically and presently.¹¹⁸

Against this backdrop, threats to linguistic diversity are predominantly induced by first-world ventures that are not only detrimental to languages but diminish the lives of those who are losing their mother-tongues and associated cultures. External land and resource exploitation, displacement, and impoverishment have a profound impact on Indigenous language and TEK (Maffi & Woodley, 2010). Thus, Indigenous language extinction is generally understood as “the direct result of colonialism and colonial practices that resulted in the decimation of [I]ndigenous [Peoples], their cultures and their languages.” Moreover, Indigenous languages face the threat of extinction across all regions via “policies of assimilation, forced relocation, boarding schools and other colonial and post-colonial policies, laws and actions” (UNPFII, 2016). As the UNs Human Development Report (HDR) argues, in linking cultural liberty to language rights and human development:

¹¹⁸ Note that beyond abstractions, first-world imperialist, capitalist, white supremacist, hetero-patriarchal, settler-colonial endeavors are imposed by *actual human persons* with wealth, status and/or power seeking to maintain the status quo, and often include corporate chairpersons, governmental leaders, state heads, and those funded by the aforementioned, and their unsuspecting instruments, including teachers, prison officials, public health officers, housing officials, etc. And while these excerpts refer to Indigenous, First Nation Peoples, we must not forget the same perpetual attack on Black lives in the U.S. and worldwide, as well as Black Indigenous Peoples.

See: Massey, 2004; Maffi & Woodley, 2010; UNPFII, 2016; and Scheer, 2019.

There is no more powerful means of “encouraging” individuals to assimilate to a dominant culture than having the economic, social and political returns stacked against their mother tongue. Such assimilation is not freely chosen if the choice is between one’s mother tongue and one’s future (HDR, 2004).¹¹⁹

Assimilation practices continue today, outside of the violent historical measures settler-colonists took in forcing First Nation children in English-submersion schools, deterring and prohibiting them from speaking their mother-tongue and the extent of “patrols, mobs, social ostracism” and even laws prohibiting enslaved Africans from speaking or reading the English language.¹²⁰ On a global scale, the HDR (2004) exhibits areas with the greatest linguistic diversity face graver challenges in providing access to multilingual education and/or education in mother-tongue.¹²¹ As in the past, many governments remain reluctant in their support and promotion of mother-tongue education and culturally relevant curriculum for BIPOC, which is “mostly for political reasons, although the arguments are often couched in economic terms” (Maffi & Woodley, 2010). Discourse, as such, has been and continues to be an instrument of power.¹²²

The journal of *Language Documentation and Conservation* (LD&C) estimates that under 10 percent of known languages are well-documented, meaning “they have comprehensive grammars, extensive dictionaries, and abundant texts in a variety of genres and media. The remaining 90 percent are, to varying degrees, underdocumented, or, for all intents and purposes,

¹¹⁹ As written in the HDR (2004): “In 19th century Belgium, for example, the Flemish who strived for upward mobility had little choice but to learn French—the sole official language—and in time many abandoned their ancestral language altogether. These pressures have not gone away in other countries: the indigenous people of Guatemala are much more likely to prosper speaking Spanish.”

¹²⁰ See: Bybee & Henderson, 2014; Cornelius, 1983; and Douglass, 1845.

¹²¹ For example, the HDR (2004) graphs access to primary education for the year 2000. In Sub-Saharan Africa, there were 2,632 spoken languages with only 13 percent of the population having access to primary education in their mother-tongue; whereas Latin America and the Caribbean had 1,086 known spoken languages, with 91 percent having access to primary education in their mother-tongue.

¹²² See: Foucault, 1971; 1980; Lorde, 1977; and Douglass, 1845.

undocumented” (LD&C, 2019). In response to the continued legacy of colonization via deliberate use of genocide and linguicide (McCarty & Nichols, 2014; Scheer, 2019), and with the implications of the dual erosion of languages and species becoming more readily known and accepted, increased records of BCD loss render an indispensable impetus to pursue language reclamation efforts. In this light, McCarty and Nichols (2014) speak to “the reclamation of Indigenous mother tongues,” using “the term *reclamation* purposefully to denote that these are languages that have been forcibly subordinated in contexts of colonization” (Hinton, 2001; Leonard, 2007). Per McCarty and Nichols (2014), language reclamation includes:

[R]evival of a language no longer spoken as a first language, *revitalization* of a language already in use, and *reversal of language shift* (RLS), a term popularized by Joshua Fishman (1991) to describe the reengineering of social supports for intergenerational mother tongue transmission.

Numerous linguistic scholars doing language reclamation aid in “bring[ing] endangered languages back to some level of use within their communities (and elsewhere) after a period of reduction in usage” (Hinton, 2011; McCarty & Nichols, 2014). A number of language revitalization efforts have been outlined into groupings by Hinton (2001) and detailed further by the First Peoples Cultural Council (FPCC, 2016), which include but are not limited to: school based programs (such as bilingual education and language immersion schools/classes), out of school programs (after school programs and summer school), adult language programs (Master-Apprentice language learning Programs (MAP) and community organization), documentation and material development (books, language transcription and audiovisual transmission development, archiving and online language tools), and home-based programs (raising bilingual children).

Language reclamation is more than simply giving life to disappearing languages. Culler (1976) stated four decades ago that, “languages do not simply name existing categories, they

articulate their own.”¹²³ Languages hold “repositories of cultural memory and guides to action able to influence the landscape and its biodiversity” (Maffi & Woodley (2010). Rather, languages convey meanings and ideas, and pass on entire systems of knowing and existing, such as medicine, farming, nutrition, weather patterns, knowledge of other-than-human persons, housing, spiritual and communal practices, art, and other known and unknown knowledge TEK retain. Therefore, “beyond simply being understood as grammar, language should be viewed as an action within the social and natural world” that is able to bridge the inextricable link between BCD (Maffi & Woodley, 2010). As the UNs Economic and Social Council (ECOSOC, 2018) summarizes:

A person’s freedom to use his or her chosen language is a prerequisite to freedom of thought, freedom of opinion and expression, access to education and information, employment and other values enshrined in the *Universal Declaration of Human Rights*.

Regardless of our level of scholarship or lack thereof, most of us easily recognize that language is essential for communicating, transmitting, and storing knowledge and values (Maffi, 2001). Specifically, when it comes to ecological understandings of one’s surroundings, knowledge systems are passed on through ancestral, familial, and communal transmission, and the historical record of language tells the story of a people, of a place, of other-than-human beings – of life. Language holds the power to anticipate and can help relay how best to orient self to our interconnected world for the sake of conservation, preservation, sustainability, and a flourishing cosmic ecology in general (Pretty et al., 2009). So, when we consider losses of languages, we need to understand this is the disappearance of entire cultures, knowledge systems, and ways of moving through an unhealthy and unstable world. But, more importantly, this also means a loss of a People. And as Crystal (2000) reminds us, “languages have no

¹²³ See also: Kashgary, 2011; and Scheer, 2019.

existence without people.”

Consequently, when contemplating the nuances of language, we can understand why it is important to learn more about BCD and the fatal threats and implications of loss, particularly in the midst of rapidly dying languages and the profound wisdom accumulated via TEK. Language reclamation facilitates tracing the root causes of ecological knowledge loss as a means to combat and counter the first-world imposed demise of languages, to reanimate systems of TEK, and respond to and address global ecological havoc via the direction of the keepers of TEK. Hence, there is a need to *not only* revitalize these languages, but to assure the prosperity of the people who hold this wisdom and intimate connection to these spaces, primarily because:

- 1) They should be guaranteed the right to live a dignified life per their own standards (particularly without impositions from external forces to assimilate into dominant cultures).
- 2) It is their basic right to their ancestral knowledge systems, culture, and lands.
- 3) It provides a wealth of knowledge from which to share, learn, and build.

Moreover, diversity is not a threat to state unity or an obstacle to development (HDR, 2004). Rather, diversity is, at the core of human development, “the ability of people to choose who they are.” In this sense, cultural and linguistic diversity are foundational to human rights and fundamental freedoms.¹²⁴ Chosen language is therefore part of one’s right to a dignified life.

The magnitude of both language loss and the inextricable link between BCD is increasingly gaining international appeal, as is visible in proliferating transnational partnerships. With the UN declaring 2019 the International Year of Indigenous Languages, UNESCO in partnership with UNPFII (2016) asserts attempts to “preserve, support and promote Indigenous languages at national, regional, and international levels” (UNESCO, 2019). This is monumentally relevant in the era of BCD threats, especially in a world where states frequently “exploit weak procedural rules in international organizations to devalue the UNs *Declaration on*

¹²⁴ See: ECOSOC, 2018; and HDR, 2004.

the Rights of Indigenous Peoples and other international human rights law” (UNPFII, 2016).

This means that the theoretical ideations engaged at international forums paired with state-sponsored implementations of biodiversity efforts, sustainability measures, and language and culture protection, reclamation, and compensation only shed light on one aspect of the deep-rooted issues surrounding BCD practice. What is actually happening on the ground remains violent (ECOSOC, 2017). The mounting struggles against first-world infractions ensue, from Flint, MI, to the favelas of Brazil, and across the lands of First Nation, Amazonian, and Congolese Peoples: BIPOC are in the midst of a war against their humanity, their basic rights, and their very lives.

The ecohealth of our Earth thus relies upon immediate response to the current state of language loss, its extinction, and reclamation efforts, as language is inextricably linked to global cultural and biological diversity. As the research shows, the first results of BCD numbers following Harmon & Loh’s (2010) study regarding the dramatic loss of global and Indigenous languages displayed our world simultaneously lost 20–25% of its BCD from 1970-2005 (Skutnabb-Kangas, 2009).¹²⁵ And new research conducted by BCD scholars map distributions of the world’s languages and plant diversity zones, displaying a strong correlation between the top 25 megadiverse countries in terms of both endemic vertebrates and languages (Harmon, 1995; Maffi & Woodley, 2010). The research continues to display the inextricable link between BCD. Therefore, integrating past and emerging research detailing BCD helps articulate the complex

¹²⁵ As Skutnabb-Kangas (2009) writes: Harmon (1995; 2002) was the first to show correlations between BCD: “Hundreds of detailed correlations” were explored when working with Loh on “*A Global Index of Biocultural Diversity* (1st version 2002, 2nd version June 2004, 3rd version October 2008).” Skutnabb-Kangas offers the first key findings of Harmon & Loh’s (2009) work (as written in the text above) regarding the relationship between linguistic and biological diversity, by superimposing the first quantitative measure of global trends in linguistic diversity (Index of Linguistic Diversity) on the Living Planet Report’s (LPR) Index (which uses species diversity as a proxy of biological diversity) for the BCD findings.

and detrimental implications of increased BCD loss, i.e. megadiversity zones, hotspots, parallel extinction risks of languages and species, and BCD case studies (Sutherland, 2003).

Pairing our understanding of the importance of BCD amid a higher than normal rate of language loss and associated knowledge bases (Pretty et al., 2009), it would be keen to consider the impact of linguistic research throughout the 90s into the present, which estimate over half of the world's languages could be extinct within the next hundred years.¹²⁶ While some scholars claim species extinction is the only definitive and irreversible global environmental change our Earth faces today, the inextricable link between BCD tells a different story.¹²⁷ As Krauss (1992) describes, languages are often not revivable, like some species that are “beyond reproductive capacity.” In fact, languages may actually face a higher threat than mammals and birds when applying the agreed upon international “criteria for classifying extinction risk” (Sutherland, 2003). When a language disappears, “an irreplaceable unit in our knowledge and understanding of human thought and worldview is lost forever” (Skutnabb-Kangas, Maffi, & Harmon, 2003). As such, per the 2019 numbers provided via *Ethnologue* and UNESCO's *Atlas of the World's Languages in Danger*, we are witnessing the crisis of extinction of nearly 3,000 languages and growing, and thus 3,000 ways of knowing and orienting to and with our world.

Scholars of linguistic diversity investigate the dynamics of global language richness, scholars of cultural diversity emphasize the breadth of human cultures, and biodiversity researchers focus primarily on our earth's biological variance. The integration of these fields via BCD aids in articulating the interdependent relationship between language, knowledge systems, orientations, and being, noting that the interwoven and coevolved diversity of nature and culture are “the basic condition of life” (Harmon, 2002; Maffi, 2005). As Harmon (2002) writes,

¹²⁶ See: Skutnabb-Kangas, 2003; 2009; ECOSOC, 2005; 2016; Maffi, 2005; and Krauss, 1992.

¹²⁷ See: Dirzo & Raven, 2003; Mittermeier, Turner, Brooks, Larsen & Gascon, 2011; and Proença & Pereira, 2017.

continued BCD loss will “staunch the historical flow of being itself, the evolutionary processes through which the vitality of all life has come down to us through the ages” (Harmon 2002; Maffi, 2005).

BCD displays the interconnectivity between the various manifestations of diversity. In considering the inextricable links between biological, cultural, and linguistic diversity losses, we need constant critique of what this means to the rights of individuals – particularly BIPOC at the margins and intersections – and the impacts of BCD loss on the individual, local, national, and global ecological community. Rather, BCD articulates the long-standing interrelationships BIPOC have shared across time through coexistence with the natural world as supporting a thriving biodiversity. And BCD exhibits how disappearing languages translate into losses of entire bodies of TEK.¹²⁸ On the global scale, this could mean severe losses on the biological and sustainable front. At this stage we are facing the threats to our global ecological health and well-being, and the potential for a thriving existence for any being. Nevertheless, BIPOC rights to a dignified life must be assured as first priority. Hence, opting out of responding to loss of, healing, and regenerating BCD means we will assuredly witness literal life-altering circumstances sweep our world that disproportionately harm BIPOC and our global ecology.

BCD work, environmental justice, and critical ecopedagogy all require forefronting BIPOC. Just the same, in integrating TEK (i.e. Indigenous science, and local sustainability techniques) with western science, conservation, and sustainability practice, we must also understand the limitations of enculturated western thought and praxis, and the knowledge systems that already exist via TEK and Indigenous culture. As Skutnabb-Kangas (2009) writes, many western researchers discover for themselves “knowledge that was already encoded” in Indigenous languages. For instance, “such as the case of salmon spawning grounds, this

¹²⁸ See: Skutnabb-Kangas, 2009; Pretty et al., 2009; Skutnabb-Kangas, Maffi, & Harmon, 2003; and Maffi, 2001.

discovery arose at least a millennium later than the [I]ndigenous people had it.” We must simultaneously safeguard TEK as the knowledge often disappears in ways where “[western] scientific retrieval is impossible, or a rediscovery of the knowledge may in any case come too late” (Skutnabb-Kangas, 2009).

Utilizing voluntary, BIPOC-led TEK is a promising measure to develop an integrated BCD that complements ecoscience and enables more holistic, critical, ecologically mindful, and just routes toward “conservation and sustainable management of biodiversity.”¹²⁹ The interchange between BIPOC sharing their TEK of their own accord with western scientists and co-creating knowledge holds the potential to serve as a promising bridge between both knowledge systems in hopes of creating useful partnerships that safeguard needs and protect rights of marginalized, intersectional communities, the most vulnerable, those most underserved, and those underrepresented (Berkes, 2009; UNESCO, 2017).¹³⁰ As stated in the *Declaration of Belém*, promoted by organizations such as Terralingua, and as numerous BCD scholars note, the only way to engage ethical work with BIPOC is in assuring the basic rights of BIPOC are honored, protected, and met; that they are the vanguards of defining what they need and what they feel is appropriate for implementation of such; and that they receive adequate compensation for “utilization of their knowledge and their biological resources” (Posey & Dutfield, 1996; Maffi, 2001).

¹²⁹ As Harmon & Loh’s (2010) research exhibits, “based on a representative random sample of 1,500 of the world’s 7,299 languages via the 2005 *Ethnologue*”: Indigenous linguistic diversity declined over 60% in the Americas, 30% in the Pacific (including Australia), and almost 20% in Africa.

See: Posey & Dutfield, 1996; Skutnabb-Kangas, Maffi, & Harmon, 2003; Maffi, 2010; and ECOSOC, 2017.

¹³⁰ UNESCO (2017) offers a couple of examples of the value of TEK: “a study carried out among the Amuesha tribe of the Peruvian Upper Amazon, whose language is severely endangered, concluded that the loss of speakers and knowledge-keepers among the Amuesha has directly and negatively impacted the diversity of crops...Another study on ancestral sayings of Maori revealed new pertinent information concerning plant growth, soils and nutrients, ecological niches and ecological communities, as well as landscape processes.”

As language reclamation case studies exhibit, communities are central in their efforts for their linguistic revival. Moreover, counter to hegemonic western thought and practice, instances where Indigenous Peoples are the vanguards of their own language revitalization fosters the most appropriate vehicles for their own communities language reclamation, with students displaying proficiency and excellence in both native-tongue and English studies (McCarty & Nichols, 2014). Meaning, even in the face of histories-long, layered, intersectional violence that has created and perpetuated the marginalization, disenfranchisement, dispossession, oppression, and silencing of BIPOC, the communities have always had and continue to have infinite wisdom and an abundant array of resources to best tend to their communities. That said, if BIPOC are not forefronted in integrated efforts (BCD included), the work remains stagnant, often violent, and unethical at the core. If BIPOC are not compensated for their TEK and resources, the actions remain unjust and harmful. In this light, the disservice of integrated research and practice, and the failure of international efforts to forefront BIPOC as the vanguards of the work – as the experts of their own lands, their homes, their TEK, their languages, their cultures, and their ways of life – is the continuation of oppression and dispossession. It is the continuation of the hetero-patriarchal white supremacist settler state’s status quo. And as Freire (2010) reminded us, the oppressor will never free the oppressed. Researchers and practitioners must thus hold ourselves and one another accountable for our work with BIPOC in their desire-based frameworks, discourses, research, and projects.

BCD in the Anthropocene: Where to go from here?

As BCD research shows, anthropogenic stresses threaten the persistence of species and the ecosystem services that support human communities, creating ecological breakdown such as environmental degradation, declines in biodiversity, and cultural diversity loss.¹³¹ And the scholarship displays how those exercising unfettered capitalist endeavors through such means as neoliberal globalization, (i.e. industrialization, modernization, urbanization, democratization, and neoliberal education) substantially propel the erosion of biological, cultural, and linguistic diversity individually and at their intersections. However, beyond abstractions, first-world imperialist, capitalist, white supremacist, hetero-patriarchal, settler-colonial transgressions are led by actual human persons with wealth, status and/or power seeking to maintain the status quo, and often include corporate chairpersons, governmental leaders, state heads, those funded by the aforementioned, and unsuspecting instruments including but not limited to teachers, prison officials, public health officers, policymakers, and housing officials.

The diversified body of BCD scholarship and research thus detail that those supporting and perpetuating the status quo unceasingly make decisions from oppressive market-driven orientations by way of a “matrix of domination,” which deteriorate the ability of BCD to persist (Collins, 1990).¹³² And the pernicious impositions of big business via neoliberal globalization policy and efforts are infiltrated, perpetuated, and sustained through interlocking systems of domination, and induce BCD loss that rival a thriving ecology (Parrotta et al., 2009). As MNCs, governmental bodies, and those with reigning authority tend only to place value on BIPOC resources, lands, and TEK as materials, sites, and intelligence to mine for capital gain without regard for ecological longevity and wellbeing, the global influence of their exploits on all

¹³¹ See: Maffi & Woodley, 2010; Pretty et al., 2009; Rapport, 2006; and Maffi, 2001.

¹³² Also see: Maffi & Woodley, 2010; and Pretty et al., 2009.

inhabitants and areas is grave.¹³³ Moreover, this reality is generally silenced by the same dominant societies and entities that are typically responsible for these destructive and often fatal actions – actions that invariably destroy our Earth’s biological diversity and massively contribute to the demise of BIPOC, their languages, cultures, histories, and ancestral lands (Maffi & Woodley, 2010).¹³⁴

Plutocratic conductors worldwide stimulate globalized markets, the commercialization of resources, and increase patterns of consumption and overconsumption, which drive threats to biological and cultural diversity (Pretty et al., 2009; Maffi & Woodley, 2010). The impacts of such first-world ventures, past and present, are rooted in anti-life orientations that promote and reinforce assimilation on myriad levels and which adversely impact cultural, social, political, and economic landscapes (Maffi & Woodley, 2010). From the massive exploitation and violence imposed on BIPOC and environments to the devastating transformations and disappearance of the natural world and other-than-human inhabitants, the utter disconnect of a consumer society driving conformist pushes toward increasingly uniform conditions of existence are far removed from nature, sustainability, and justice, generating a “deleterious feedback loop” that inflates the

¹³³ See: Maffi & Woodley, 2010; Pretty et al., 2009; Chomsky, 1999; Roy, 2011; 2017; and Kellner, 1992.

¹³⁴ It must be noted that this does directly address varying impacts of capitalist pursuits imposed on BIPOC in the first-world, namely the prison-industrial-complex and the massive amounts of economic benefits for-profit corporations gain from free or extremely low-paid prison labor, due in large part to the exception clause written in the 13th amendment. Although this post-civil war amendment may have been drafted in good-faith, this loophole is even more problematic when taking into account the U.S. incarcerating the largest number of persons in the world, the disproportionate numbers of these individuals being BIPOC, or those detained for marijuana-related crimes with the substance now deemed legal in many states (i.e. with the help of the “war on drugs”) (Kann, 2019; Von Blum, 2016). This does not even account for the number of corporations enlisting low-paid prison labor for major products.

Moreover, states and investors (namely Corrections of Corporation of America (CCA) and the GEO Group) literally benefit from prison labor (Downs, 2013). One example is the Louisiana State Penitentiary (the largest maximum-security prison stateside). Known as Angola Prison, in 2018 the majority Black inmate population (nearly 80 percent in 2015, with majority white guards) were documented harvesting crops, even picking cotton, on former plantation grounds where enslaved Black people were once bound to these tasks via chattel slavery (Goldberg, 2015; Bennis, 2015; Bauer, 2018; Beale, 2018; Layton, 2019). Another example is the California Department of Corrections and Rehabilitation’s (CDCR) Conservation (Fire) Camps program, which includes about 3,800 minimum-custody, volunteer state prison inmate firefighters deemed a “low safety risk.” According to CDCR spokesperson Bill Sessa, the program saves the state of California \$90-100 million a year (Helmick, 2017).

“homogenization of peoples and landscapes” (Maffi & Woodley, 2010; Pretty et al., 2009). And in an inherently interconnected world, regardless of our proximity to or daily interaction with nature or one another, such capitalist endeavors habitually cause severe ecological harm on myriad levels without recourse, stirring up an ecologically detrimental avalanche wreaking far-reaching destruction with long-lasting impacts and limited potential for full recovery and/or restoration. This means, for example, that an MNCs efforts can dramatically impair the quality of life and/or the potential for existence of humans (disproportionately BIPOC), plant life, insects, land animals, sea life, and birds, and inevitably decrease the ambient quality of habitats, waterways, and air. And since humans and other-than-human beings are typically only deemed of value or worth if and when they are a useful resource in a western, oppressive market-based system, in various situations these processes repeatedly engender ecological deteriorations, leaving our earth and innumerable inhabitants impoverished, in dis-ease, displaced, removed, and often en route to dying on multiple levels (Maffi & Woodley, 2010). Furthermore, as the research displays, BIPOC are disproportionately exposed to and bare greater harm, and are often rendered vulnerable and unprotected amid these first-world enterprises (Bullard & Johnson, 2000).

Even though the “importance and contributions” to ecological issues such as greening, conservation, and sustainability are becoming more tangible and accepted with many new efforts implemented, not enough discourse surrounds BCD as it pertains to our threatened ecology, i.e. the rapid losses of our global biological, cultural, and linguistic diversities. Moreover, what is understood and practiced is generally derived from the hegemonic global north perspective and remains devoid of the wealth of ancestral and firsthand expertise BIPOC TEK offer. Thus, while we find ways to conserve energy, reduce/reuse/recycle waste, and contribute to global efforts

such as protecting cultural heritage sites, our Earth and its countless inhabitants are quickly disappearing and dying. And this crisis is rapidly unfolding with little retribution for those aggressively pursuing “profit over people” with diminishing possibilities for recovery without an extreme shift away from dominant paradigms and associated ways of life (Chomsky, 1999). Therefore, understanding the implications of these losses in the face of the Anthropocene is necessary, because without this knowledge we lose histories of entire ecosystems and peoples who navigated and adapted through the evolutions of varying times, spaces, and life events. Lack of this knowledge can inevitably lead to catastrophic BCD extinctions that influence the livelihood of all life forms on this planet, i.e. a detrimental butterfly effect.

BCD research thus offers a direct opposition to western orientations to the world that leverage a consumer, market-driven society where power is exerted to benefit an elite few at the expense of a marginalized majority. Nonetheless, there is little discourse surrounding how these projects and policy initiatives can be potentially harmful to BCD (meaning humans, inhabitants, and places) outside of inclusivity of participation – meaning, you are allowed a seat at the table in a system that is inherently built upon inequity and injustice. Rather, we must also analyze the dangers of approaches that lean too far on the side of multilateral idealism i.e. utopian partnerships versus direct and mutual aid. We can do this by including historical critiques of outside influences and encounters with pre- and non-industrialized societies to consider the ways that interlocking systems of domination have, can, and will attempt to manifest. For example, we need to critique the reasons for the sudden interest in BCD efforts from big business, governments, and military enterprises, and remain critical of the potential threats BIPOC face in sharing their TEK. We must continue to ask: what is the need for BIPOC when their TEK are shared, and how are these knowledge systems, and/or BIPOC guaranteed protection – even life –

once their knowledge is shared and captured in time? Similarly, at what point do we opt to find more ecologically mindful modes within and beyond technological and neoliberal advances to assure that the natural earth and inhabitants thrive, with diversity intact, and do not disappear?

Knowing that BIPOC and low-income persons continue to disproportionately be exposed to and bear “greater environmental and health risks than society at large in their neighborhoods, workplace, and playgrounds,” (Bullard & Johnson, 2000), the question remains: while much of this work remains anthropocentric, which humans benefit and are heard? Rather, biological, cultural, and linguistic research is trending, albeit predominantly for the utility to those with power, i.e. so long as it maintains and benefits existing interlocking systems of domination. Moreover, a host of BIPOC, activists, and scholars (often with intersectional identities) spanning time have continuously conducted critical works directly unearthing and addressing such topics as conservation, environmental racism, environmental justice (EJ) and sustainability. However, dominant discourse tends to remove, dismiss, or sideline BIPOC and their knowledge systems while elevating first-world, often white, often white male voices. Thus, while useful, biological, cultural, and linguistic diversity must integrate via fields such as BCD, JS and CEL, and require critical analysis of the layered impacts of intersectional racism that is still inherent in much research and ultimately support the status quo. As such, BCD, critical ecopedagogy, and justice-oriented work in general require the inclusion of marginalized, minoritized, and intersectional BIPOC voices as the leaders in the discourse, study, and application.

What follows is a chapter on sustainability projects that actualize theoretical ecological concepts centering and elevating BIPOC, known as JS. The following will speak to interlocking systems of domination as mentioned briefly at the close of this chapter, more specific ecological outcomes of such harmful projects specifically pertaining to BIPOC, i.e. climate destabilization

and JS efforts that are overcoming, reclaiming, and revitalizing the diversity of life in its varying manifestations. As mentioned in the introduction of this work, the dissertation will display in its final chapter how BCD and JS are expressions of love and facets of CEL, which require reclamation, healing, tending, nurturing, cultivation, responsibility, justice, and care.

CHAPTER 4

TOWARD CRITICAL JUSTICE-ORIENTED SUSTAINABILITIES

A ‘just’ sustainability is therefore: The need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems.

-Julian Agyeman, Robert Bullard, & Bob Evans, 2003

Throughout the ages, varying groups advocated and/or cultivated nature preservation. Local Communities and Indigenous Peoples the world over consistently honored, held sacred, and respected the natural world and elements with which they coexisted.¹³⁵ The late 18th century romanticists’ deep interest in reversing environmental degradation in response to modernity sparked an intellectual, artistic, and literary movement. And environmentalists and human rights activists, including countless BIPOC have defended the ecology across time and locale. However, several 20th century anthropogenic environmental disasters transpired that aroused instances of public outcry led to subsequent social, political, and judicial reform, and helped direct the conversation toward sustainability.

The Amer-European “settler-colonial imaginary,” which drastically altered “bountiful Native soil into pasture and cropland,” intensified the Midwest drought and dust bowls of the 1930s, forcing mass distress migrations in the hundreds of thousands from the Great Plains, and eventually assisting in soil conservation farming reform and surplus relief.¹³⁶ London’s Great Smog of 1952 killed estimations of at least 10,000 people and influenced the U.K.’s Clean Air Act of 1956 (Zhang & Samet, 2015).¹³⁷ And on the heels of the horrific aftermath of the U.S.

¹³⁵ We now understand this inextricable link as BCD, following the previous chapter.

¹³⁶ See: Lynch, 2014; Kaye, 2011; and McLeman et al., 2014.

¹³⁷ The U.S. passed the Clean Air Act in 1955, which was modified with extended federal authorization in 1963 and 1970. In addition, the aftermath of London’s Great Smog has since influenced Zhang & Samet’s (2015) current research conducted on the associated connections to smog in China.

mercilessly dropping atomic bombs on Hiroshima and Nagasaki, the 1946 and 1954 Bikini Atoll nuclear bomb test detonations left the island contaminated and unfit for habitation by its still dispossessed residents, with many questioning the value of such enduring and catastrophic nuclear warfare (Niedenthal, 2002; Eschner, 2017).¹³⁸

A series of largely publicized human-induced ecological events beginning in the 1960s through to the 1980s further ignited a greater mainstream sense of environmental responsibility, though still remaining highly contested. Former marine biologist Rachel Carson's 1962 book, *Silent Spring* exposed indiscriminate pesticide and insecticide use as hazardous to insects, animals, and inevitably humans.¹³⁹ Carson's controversial text led to scientific research backing her claims and the eventual national banning of the commonly used Dichlorodiphenyltrichloroethane (DDT): "the most powerful pesticide the world had known" (NRDC, 2015).

In 1969, the Cuyahoga River that flows into Lake Erie caught fire due to unregulated sewage and industrial chemical dumping in the Great Lakes, gaining massive media attention, fomenting public outrage, and motivating environmental consciousness. Not unusual for its time, numerous lakes and tributaries including the Chicago and Buffalo rivers repeatedly burned due to sewage and waste dumping of the heavy industry-lined shores. The aforementioned events

¹³⁸ According to *The Guardian* article published by a Bikini Atoll resident: Bravo was detonated in 1954. As ashes fell, "[c]hildren played in the fallout and as night came they began to show the physical signs of radiation exposure. They experienced severe vomiting and diarrhoea, their hair began to fall out, the island fell into a state of panic."

Although allowed to move back in 1968 as promised by President Lyndon B. Johnson, "Trust Territory officials arrived on Bikini to again evacuate the people who were living on the atoll because they had discovered that the radioactive element most prevalent on Bikini, cesium 137, had travelled through the food chain and into the bodies of the islanders. US Department of Interior officials called the huge increases in the islanders' levels of cesium "Incredible" the islanders have not lived on the atoll since the second exodus in 1978" (Niedenthal, 2002).

¹³⁹ Per the NRDC (2015) website: "Many eminent scientists rose to her defense, and when President John F. Kennedy ordered the President's Science Advisory Committee to examine the issues the book raised, its report thoroughly vindicated both *Silent Spring* and its author. As a result, DDT came under much closer government supervision and was eventually banned."

catapulted a wave of heightened concern in the general public that helped establish the Environmental Protection Agency (EPA) in 1970, and the Clean Water Act of 1972 (MEC, 2011).¹⁴⁰

Years of unregulated industrial toxic waste disposal yielded New York's Love Canal explosion in 1978. President Jimmy Carter declared a state of emergency on two occasions thereafter as hundreds of residents living on 20,000 tons of toxic chemicals exhibited numerous inexplicable illnesses including migraines, epilepsy, and asthma (Newman, 2001). Founded that same year, the Love Canal Homeowners Association interviewed families with the help of volunteer scientist Dr. Beverly Paigen. Together they found "increases in miscarriages, still births, crib deaths, nervous breakdowns, hyperactivity, epilepsy, and urinary tract disorders" in the Love Canal neighborhood (CHEJ, 2016). Knowledge of the human impact following the disaster led to ensuing legislation that regulated hazardous waste dumping, including passing the original and still operative Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, known as the Superfund, offering federal funding for cleanup of hazardous-waste site disasters (Beck, 1979). Nevertheless, businesses continued these illegal practices, routinely and disproportionately targeting racially marginalized, lower-socioeconomic communities and often only slightly decreasing the impacts of their harmful environmental and ecological footprint (Skelton & Miller, 2017).

All of the aforementioned movements and moments of the era influenced the establishment of governmental environmental agencies, federal mandates for corporate responsibility, numbered environmental acts, hazardous material use regulations, the reversal of many hazardous waste disposal methods, controls of pollutants and harmful pesticides,

¹⁴⁰ The Clean Water Act was amended from the Federal Water Pollution Control Act of 1948 and was the first major U.S. law to address water pollution (EPA, 2017).

development of greener, eco-conscious products, sustainability efforts, and a heightened awareness of the people disproportionately impacted by environmental injustices and “limited environmental benefits” (Taylor, 2014). Still, many corrupt practices continued, which motivated widespread public protest for ecological change. A deluge of conversations, conferences, and policies sprouted thereafter (and have since) as discourse heightened around environmentalism and sustainability, including the fragility of our threatened global ecology, and environmental injustices that target and disproportionately harm BIPOC, low-income communities, and those at the intersections of marginalization.

From Environmentalism to Sustainability: A Global North Perspective

The public’s expanding consciousness about the threats global anthropogenic environmental damages pose to human survival roused the development of sustainability efforts around the 1970s to help establish environmental responsibility and accountability from corporations, governments, as well as citizens. Sustainability efforts have since paralleled and extended environmental initiatives but were further deployed into the economic, social, political, and cultural spheres (Campbell & Mollica, 2009). Sustainability practices thus focus on such issues as mitigating climate destabilization, safeguarding natural resources and natural ecosystems, producing renewable energy sources, reducing pollutants and waste, managing air and water quality, protecting the earth’s biological diversity, preserving local food sources, establishing environmental policies and corporate reform, developing environmental research, science, and technology, expanding environmental education and ecoliteracy, supporting economic and social development, fostering local, national, and international efforts, and

prioritizing human health, safety, and quality of life, particularly for those most marginalized and vulnerable.¹⁴¹

Although sustainability discourse and practice seem quite commonplace today, sustainability is a fairly new concept with profound implications that actually gained status quite rapidly (Spindler, 2013). Two major milestones occurred half a century ago that sparked interest in sustainability: the Club of Rome was established and published its foundational report, and the UN hosted its first environmental conference.¹⁴² In 1968, a group of mostly white, European male scientists founded the Club of Rome to discuss such topics as environmental degradation, poverty amid abundance, modernization, and inflation, i.e. the “world problematique.” That same year, the Swedish Government proposed via formal letter that the UN host an international conference, as anthropogenic changes had become an urgent problem for both developed and developing countries that only international cooperation could address. As the ECOSOC and UNGA pursued revisions, requested reports, and adopted various resolutions in preparation for the forthcoming UN Conference on Human Environment (UNCHE), the Club of Rome commissioned an international team of researchers at Massachusetts Institute of Technology (MIT) to examine five variables that limit growth on the planet. The team published *The Limits to Growth* nontechnical report, which “explored exponential population growth in the context of finite natural resources,” and claimed “unbridled conventional economic growth is unsustainable.”¹⁴³ By the summer of 1971, four of the 17 MIT team members shared their findings in international conferences in Moscow and Rio de Janeiro (Meadows et al., 1972). One

¹⁴¹ See: NCA, 2018; Baker, 2014; Edwards, 2005; and UNCHE, 1973.

¹⁴² See: Meadows, Meadows, Randers, & Behrens III, 1972; UNCHE, 1973; Rapport, 2006; and Parenti, 2012.

¹⁴³ The MIT team’s study examined: population increase, agricultural production, nonrenewable resource depletion, industrial output, and pollution generation. For more, see: Meadows et al., 1972; Rapport, 2006; Campbell & Mollica, 2009; and Parenti, 2012.

year later, the UNCHE convened in Stockholm, Sweden. Led by the Club of Rome's Maurice Strong, the 1972 UNCHE marked the UN's first major conference on environmental issues, established the UNEP, and introduced the *Stockholm Declaration* (UN, 2012; Spindler, 2013).¹⁴⁴ The culmination of these critical landmarks further kindled international debate around both global inequality and fears surrounding the consequences of unrestrained economic development on the environment (Campbell & Mollica, 2009).

Nearly a decade later, the UNGA assigned The Brundtland Commission to create a "global agenda for change" in 1983 (Sverdrup & Stjernquist, 2002). By 1987, the World Commission on Environment and Development's (WCED, 1987) Brundtland report, *Our Common Future* warned that "human activities must be tempered if development is to be ecologically supportable" and thus advocated for sustainable development policy (Rapport, 2006).¹⁴⁵ The Brundtland report defined sustainable development as:

[D]evelopment that meets the needs of the present without compromising the ability of

¹⁴⁴ Note that the UNEP in partnership with the World Meteorological Organization (WMO) established the IPCC in 1988 (IPCC, 2019).

The UNCHE's *Stockholm Declaration* offered 26 principles "to inspire and guide the peoples of the world in the preservation and enhancement of the human environment" (UNCHE, 1973). These principles as well as various 1992 Earth Summit outcome documents, including the *Rio Declaration's* 27 principles and Agenda 21, helped build the foundation of the 2002 *Johannesburg Declaration* via the World Summit on Sustainable Development (Earth Charter, 2016).

The Rio+10 World Summit brought world leaders and NGOs together to assess the progress and develop more effective implementation of Agenda 21 in its local and global initiatives, and resolved to renew commitment to "achieving the internationally agreed development goals" in its adoption of the *Johannesburg Declaration* (UN, 2002; Allen & You, 2002). However, as Kahn (2010) writes: "the summit proved disappointing" in many respects, including its pro-business agenda and refusal "to consider ratification of the holistic, pointedly socialist in spirit, and non-anthropocentric Earth Charter educational framework (Gadotti, 2009)."

¹⁴⁵ Published in March of 1987, WCED's *Our Common Future* was chaired by Gro Harlem Brundtland, and is thus widely known and referred to as the Brundtland report.

Amid sustainability discussions, recall that only two months later (May of 1987), the first issue of the *Conservation Biology* journal was published, which soon became the main vehicle for scientific publication and debate on issues related to biodiversity. And within a year, the ISE drafted the *Declaration of Belém* that first mentioned the inextricable link between biological and cultural diversity.

future generations to meet their own needs (WCED, 1987).¹⁴⁶

This loosely articulated “the dimensions of sustainability” in relation to the natural world, social systems, development, and economics (Sverdrup & Stjernquist, 2013).¹⁴⁷ Although the global scale of human consumption was not fully understood for quite some time, these strides offered footing to begin tackling international sustainability projects (Davim, 2017).

Sustainability efforts were soon thereafter established to monitor, limit, and develop policy around environmental responsibility for corporations and governments with regards to cumulative anthropogenic environmental distress.¹⁴⁸

However, since the first-world global north established the concepts surrounding sustainability, development, and needs, it also decided its pursuit of the dimensions and execution, i.e. “what is to be sustained, by whom, for whom, and what [are] the most desirable means of achieving [these goals?].”¹⁴⁹ As such, the widely-used global north definition centers a first-world cultural specification that excludes how the broad spectrum of our diverse global population defines the “dignity line.”¹⁵⁰ Rather, the current parameters of dignity are determined

¹⁴⁶ The Brundtland definition and the IUCN’s evolution from its original 1980 conservation-based definition are the most used; although, neither of the most commonly used definitions specifically mention justice and equity (Agyeman, Bullard, & Evans, 2010). The IUCN’s (1991) concept of sustainability emphasizes “the social, economic and political context of ‘development’: to improve the quality of life while living within the carrying capacity of ecosystems (IUCN, 1991).

¹⁴⁷ Also see: Robert, Parris, & Leiserowitz, 2005.

¹⁴⁸ See: Spindler, 2013; and Agyeman, Bullard, & Evans, 2010.

¹⁴⁹ Robert, Parris, & Leiserowitz (2005) also discuss the various definitions of sustainability, highlighting the 1999 Board on Sustainable Development of the U.S. National Academy of Science’s *Our Common Journey: A Transition toward Sustainability* report, emphasizing distinctions between “what advocates and analysts sought to sustain and what they sought to develop, the relationship between the two, and the time horizon of the future.”

See: Agyeman & Evans, 2004; and Davim, 2017.

¹⁵⁰ The global hegemony overwhelmingly and almost exclusively hold the wealth, status, and power required to make decisions that fundamentally frame and alter the status quo, or altogether dismantle interlocking systems of domination. It is those maintaining and upholding empire via hegemonic systems (in both the north and the south), i.e. capitalism, neoliberalism, settler-colonialism, who are referenced when speaking about the first-world global

by “a culturally specific minimum level of consumption needed to allow a life lived with dignity,” i.e. a social minimum based on the poverty line as opposed to a dignity line. Instead, Larrain, Leroy, and Nansen (2003) propose instituting a dignity baseline that converges northern and southern frameworks and “advances from the concept of minimum life [to that] of a dignified life” – e.g. beyond the attempts to simply overcome material scarcity, reducing over-consumption of elites at both ends of the poles (Larrain, 2001).¹⁵¹ As the authors write, the dignity line should be rooted in a broad definition of human rights including physical subsistence, as well as political, cultural, and social rights.¹⁵² Until this becomes the standard, the longstanding and commonly-used Brundtland definition will continue to guide environmental, ecological, and sustainability projects that essentially support current modes of development, i.e. resource extraction, accumulation, production, consumption, and disposal *without* critically acknowledging, upending, and/or countering the root causes of first-world anthropogenic ecological harm and injustice as discussed via the brown agenda.¹⁵³

A National Movement for Environmental Justice

There are various historical examples of first-world development triggering detrimental ecological impacts from the genesis of the U.S. as a colonial-settler state and beyond. A 2019 study, for example, reveals that European occupation and colonization of Turtle Island two

north, as the matrix of domination holistically works to maintain hierarchies that assure BIPOC and those at the intersections or marginalization (who make up a large portion of those located in the first-world global north) remain marginalized, i.e. there are people from the global south living in the global north, per Pelaez Lopez (2019).

¹⁵¹ Per Larrain, Leroy, & Nansen (2003), the north-south convergence translates to “the equitable distribution of planetary services and resources, based on equal human rights for all (per capita) and consistent with collective rights.”

¹⁵² For more, see: Agyeman, 2017; Davim, 2017; and Larrain, Leroy, & Nansen, 2003.

¹⁵³ Many sustainability efforts focus on individual projects that dismiss how the entire program, institution, business, project, and etc. are actually not aligned with a mission of sustainability as a whole. This is even true of many first-world decolonization, democratization, and liberation projects such as radical or critical pedagogy courses, conferences, and discourse (often led by non-BIPOC). See Tuck & Yang (2012), *Decolonization is not a metaphor*.

centuries prior to the Industrial Revolution catapulted global climate destabilization via the genocide of an estimated 55 million First Nation Peoples. The extermination of the majority of Indigenous Peoples followed by the clearing of land and subsequent large-scale vegetation regeneration resulted in decreases in both atmospheric CO₂ and global surface air temperatures over a relatively short timescale, which likely “contributed to the coldest part of the Little Ice Age” (Koch, Brierley, Maslin, & Lewis, 2019).¹⁵⁴

Against this backdrop, BIPOC have consistently resisted against colonial advances, struggling over occupation, militarization, industrialization, theft and conversion of their lands, their right to a dignified life, and respect for the life of all beings.¹⁵⁵ As the body of sustainability research expands to include significantly more BIPOC and those at the intersections of marginalization, critical studies such as the aforementioned will continue to elucidate the nuances, depths, and correlation between anthropogenic distresses, environmental injustice, and the development and maintenance of empire, namely from the standpoints and experiences of those who bear the greatest harm. Through the steadfast attempts to marginalize, assimilate, and omit BIPOC historical records, exhaustive bodies of scholarship, firsthand knowledge, and entire

¹⁵⁴ Note that European settler-colonialism of Turtle Island, occasionally referred to as the “columbian exchange,” though altering landscapes and spreading biological warfare, was not monolithic. As Blackhawk (2013) writes, “While unprecedentedly devastated by waves of European pathogens, land expropriations, warfare, and religious impositions, Indigenous communities across America’s many colonial spheres adapted to the challenges of colonialism’s onslaught by drawing upon familiar as well as new logics. Just as American foods, minerals, and land fueled the emergent Atlantic world, so too did Indigenous communities shape the contours of imperial expansion. Particularly in North America, forms of Indigenous autonomy continued throughout the sixteenth, seventeenth, and eighteenth centuries, influencing the evolving structures of settler colonial governance.”

¹⁵⁵ Indigenous activists have consistently been forced to confront and “combat infringement and desecration of sacred sites; land appropriation and threats to sovereignty; as well as loss of traditional fishing, hunting, and gathering rights” (Agyeman et al., 2016). Kanaka Maoli physician, Kalamaoka’aina Niheu (2019), for example, speaks to the history of the Indigenous Hawaiian independence movement, a return to Indigenous systems of sustainability, and global, allied Indigenous resistance to colonial projects in an era of increasing anthropogenic climate destabilization.

Agyeman et al. (2016) offer brief mentions of Indigenous communities in the U.S., as mentioned above, as well as Chicano and Latinx communities (in relation to farm workers rights in particular), African Americans (especially regarding toxics, but highlight housing, transportation, air quality, and economic development), and Asian Pacific Islander communities fighting for EJ “in their communities.”

existence, it has been and largely remains BIPOC agitators responding to environmental racism and injustice who continue to advance the critical discourse and implementation of environmental protection as a basic right, not a privilege (Bullard & Johnson, 2000). In fact, the origin of objection to environmental racism and injustice four decades ago moved environmentalism and sustainability toward justice-oriented efforts, when the protests of local residents reverberated widespread media attention across the nation.

The environmental justice (EJ) movement was most notably ignited about a year after New York's Love Canal explosion.¹⁵⁶ In 1979, the North Carolina state government decided to select the small, majority Black-populated town of Afton, NC to dump 6,000 trucks full of soil laced with toxic polychlorinated biphenyl (PCB), suspected of causing cancer, in a newly constructed hazardous waste landfill in Warren County – one of the poorest counties in North Carolina (NYT, 1982; Bullard, 1990).¹⁵⁷ The site in Afton was “not even scientifically the most suitable” as heavy PCB concentrations in the landfill paired with low water table levels would inevitably translate to the landfill leaching into groundwater (Geiser & Waneck, 1983; Bullard, 1990).¹⁵⁸ The majority Black residents' and activists' knowledge of contaminated groundwater and its associated health risks understood that:

[F]orcing a toxic landfill onto a small African-American community [was] an extension of the racism they had encountered for decades in housing, education and employment. But this time, it was *environmental* racism (Skelton & Miller, 2017).

By 1982, locals and “[g]rassroots groups were joined by national civil rights leaders,

¹⁵⁶ For more on EJ and sustainability efforts emphasizing preventative measures instead of risk-redistribution see: Agyeman, Bullard, & Evans, 2010; Agyeman & Evans, 2004; Bullard, 2001; Faber, 1998; and Guana, 1995.

¹⁵⁷ Warren County, in which Afton is located, had the highest percentage of Black people in the state, representing nearly 64 percent of the population in 1980 (Geiser & Waneck, 1983; Bullard, 1990).

¹⁵⁸ After fifteen years, the state of North Carolina spent “over \$25 million to clean up and detoxify the Warren County PCB landfill” (Bullard & Johnson, 2000).

[B]lack elected officials, environmental activists, and labor leaders” who participated in nonviolent agitation of the landfill, voicing concerns of PCB leaching, and formally uniting the civil rights and environmental movements.¹⁵⁹ Weeks of protesting paired with over 400 jailed stirred the nation and emerged as the first arrests in the U.S. involving halting a toxic landfill site, with the agitation considered by many to be one of the nation’s major formative milestones that catalyzed the EJ movement and subsequent research.¹⁶⁰

Galvanized by Afton, Rev. Dr. Benjamin Chavis and Charles Lee coauthored *Toxic Waste and Race* in 1987. As the first nationwide qualitative study of its kind, the piece examined “the relationship between the treatment, storage and disposal of hazardous wastes, and the issue of race.”¹⁶¹ Tailing Love Canal, the duo noted that hazardous wastes were defined by the EPA as by-products of industrial production that present “particularly troublesome health and environmental problems.”¹⁶² Chavis and Lee’s research regarding the location of corporate

¹⁵⁹ Among the participants were Rev. Dr. Chavis, “former executive director of the National Association for the Advancement of Colored People (NAACP) and long time civil-rights community organizer and activist” (Lazarus, 2000), the United Church of Christ Commission for Racial Justice’s executive director, Dr. Charles E. Cobb, and regional field director, Rev. Leon White (Bullard, 1990; Lazarus, 2000). Also included was “District of Columbia Delegate Walter Fauntroy of the Congressional Black Caucus, and some 500 loyal supporters [who] were able to focus the national limelight on the tiny [B]lack town of Afton...The Warren County protesters even got encouragement from the chief of EPA’s hazardous waste implementation branch, William Sanjour” (Bullard, 1990).

¹⁶⁰ Agyeman et al. (2016) write that following the arrests, “members of the US House of Representatives requested an analysis of the correlation between hazardous waste landfill locations and the racial and socioeconomic demographics of the surrounding communities. The following year, the US General Accounting Office (GAO; now the US Government Accountability Office) published *Siting of Hazardous Waste landfills and Their Correlation with Racial and Economic Status of Surrounding Communities*” (as pulled from U.S. Gen. Account. Off. 1983).

Also see: Skelton & Miller, 2017; Lazarus, 2000; and Bullard, 1990.

¹⁶¹ As Agyeman et al. (2016) write: “The authors of *Toxic Wastes* established a precedent for community empowerment and stated their intent that the report “better enable the victims of this insidious form of racism not only to become more aware of the problem, but also to participate in the formation of viable strategies” (Chavis & Lee, 1987).

¹⁶² Congress mandated waste management and landfill dumping regulations, granting the EPA authority to develop the 1976 Resource Conservation Recovery Act (RCRA), “the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste” (EPA, 2018b).

Yet, as Chavis and Lee (1987) write: “The problem of human exposure to uncontrolled hazardous wastes is national

landfills in predominantly Black and Latinx, lower socio-economic neighborhoods such as Afton exhibited “the existence of clear patterns which show[ed] that communities with greater minority percentages of the population are more likely to be the sites of such facilities.”¹⁶³ The pair found that “Race proved to be the most significant among variables tested in association with the location of commercial hazardous waste facilities.”¹⁶⁴ Chavis and Lee’s study further invigorated concerns regarding health outcomes associated with human exposure to landfill dumping and helped enlighten the mass public to environmental racism.¹⁶⁵ Within six years of releasing their report, all of Chavis and Lee’s recommendations to address environmental injustice were implemented, including an EPA special council, revisions of policies and regulations regarding hazardous waste, and education and research initiatives (Morrison, 2009).¹⁶⁶ In turn, the authors

in its scope. By 1985, the [EPA] had inventoried approximately 20,000 uncontrolled sites containing hazardous wastes across the nation. The potential health problems associated with the existence of these sites is highlighted by the fact that approximately 75 percent of U.S. cities derive their water supplies, in total or in part, from groundwater.”

Moreover, the author’s cite: “Blacks were heavily over-represented in the populations of metropolitan areas with the largest number of uncontrolled toxic waste sites. These areas included: Memphis, TN (173 sites), Cleveland, OH (106 sites), St. Louis, MO (160 sites), Chicago, IL (103 sites), Houston, TX (152 sites), and Atlanta, GA (94 sites).”

¹⁶³ It is extremely important to note that the study published by Chavis and Lee (1987) for the United Church of Christ Commission for Racial Justice used the language “Hispanic” as defined by the U.S. Census Bureau at that time. Per Ramirez and Blay (2016), I use the term “Latinx” as it, “aims to move beyond gender binaries and is inclusive of the intersecting identities of Latin American descendants. In addition to men and women from all racial backgrounds, Latinx also makes room for people who are trans, queer, agender, non-binary, gender non-conforming or gender fluid.”

¹⁶⁴ Recall that in the aftermath of Hurricane Harvey, *Democracy Now!* (2017) exposed how race rather than income is a more important indicator in determining exposure to environmental hazard, similar to scholars of this work including Bullard (1993; 2010), Agyeman, Bullard, & Evans (2010); Bullard & Johnson (2000), and Bryant & Mohai (1992), many mentioned in the introduction of this dissertation.

¹⁶⁵ While the details around Chavis coining the term “environmental racism” are contested, Lazarus offers a historical overview and speaks to the term as, “invariably the product of the broader community.”

¹⁶⁶ As Agyeman et al. (2016) write, the report’s preface foreshadowed “the fundamental Principles of EJ that would be codified by the 1991 First National People of Color Environmental Leadership Summit.” The authors also cite: “In 1992, the EPA created the Office of Environmental Equity (later renamed the Office of Environmental Justice)” and “[i]n 1993, the EPA establishe[d] the National Environmental Justice Advisory Council.” By 1994, President Clinton signed “Executive Order 12898 mandating that “[E]ach Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income

brought forth race-based EJ as a requisite entry point for environmental and sustainability efforts, thereby reshaping conceptions of environmental law and justice, and challenging “toxic colonialism, environmental racism, and the international toxics trade at home and abroad” (Bullard, 2001, Lazarus, 2000).¹⁶⁷

Notwithstanding such progress, research at the start of the 21st century disclosed that “[h]azardous waste sites, municipal landfills, incinerators, and other hazardous facilities” remain disproportionately located in low-income and BIPOC neighborhoods across the U.S., where locals are subsequently “exposed to higher levels of pollution than the rest of the nation.”¹⁶⁸ As Bullard & Johnson (2000) articulated:

The poisoning of African Americans in Louisiana’s “Cancer Alley,” Native Americans on reservations, and Mexicans in the border towns all have their roots in the same economic system, a system characterized by economic exploitation, racial oppression, and devaluation of human life and the natural environment. Both race and class factors place low-income and people-of-color communities at special risk. Although environmental and civil rights laws have been on the books for more than 3 decades, all communities have not received the same benefits from their application, implementation, and enforcement.

Little has shifted in the last twenty years. The EPA released a report in early 2018 that reveals racial and socio-economic “disparities in distributions of particulate matter [(PM)] emissions.” Per the study, Black people specifically had 1.54 times higher burden from PM facility emissions than did the overall population, non-whites had a 1.28 times higher burden, and those in poverty had 1.35 times higher burden from PM facility emissions than the overall populations.”

However, environmental organization including the EPA fell short in implementing “environmental justice proposals” as “economic imperatives” often took precedence (Dryzek et al., 2003).

Note that, in 1999, Charles Lee served as the director of policy and interagency liaison at the EPA’s Office of Environmental Justice (OEJ), and currently stands as the OEJ’s senior policy advisor (Morrison, 2009; EPA, 2019).

¹⁶⁷ EJ emerged as “the first paradigm to link environment, and race, class, gender, and social justice concerns in an explicit framework” (Taylor, 2000).

¹⁶⁸ See: Aygeman, Bullard, & Evans, 2010; Massey, 2004; and Bullard & Johnson, 2000.

population.¹⁶⁹ The authors conclude that “[d]isparities for Blacks are more pronounced than are disparities on the basis of poverty status,” noting that “strictly socioeconomic considerations may be insufficient to reduce PM burdens equitably across populations” (Mikati et al., 2018).

Paralleling the work of their predecessors, Tessum et al. (2019) indicate the persistence of “racial-ethnic disparities in air pollution exposure” in the U.S., exhibiting that Black and Latinx people bear a disproportionate burden from air pollution “caused mainly by non-[Latinx] whites.”¹⁷⁰ In fact, as Downey & Hawkins (2009) reveal, Black people “experience such a high pollution burden that [B]lack households with incomes between \$50,000 and \$60,000 live in neighborhoods that are, on average, more polluted than the average neighborhood in which white households with incomes below \$10,000 live.”¹⁷¹ Case in point, Los Angeles is the second largest oil-producing county in the state and home to the Inglewood Oil Field, the largest urban oil field in the nation, which is adjacent to three of the most affluent, predominantly Black neighborhoods in the country: Ladera Heights, Baldwin Hills, and Windsor Hills.¹⁷² Due to this proximity, the majority-Black residents dwelling within this sector of L.A. spattered with active gas and oil refineries inevitably experience higher rates of exposure to chemical-specific

¹⁶⁹ Mikati et al. (2018) objectives were: “To quantify nationwide disparities in the location of (PM)-emitting facilities by the characteristics of the surrounding residential population and to illustrate various spatial scales at which to consider such disparities” Per the study’s methods: “We assigned facilities emitting PM in the 2011 National Emissions Inventory to nearby block groups across the 2009 to 2013 American Community Survey population. We calculated the burden from these emissions for racial/ethnic groups and by poverty status. We quantified disparities nationally and for each state and county in the country.”

¹⁷⁰ For more on BIPOC and low-income communities facing disproportionate environmental burden, also see: Lavelle & Coyle, 1992; Agyeman, Bullard, & Evans, 2010; and Taylor, 2014.

¹⁷¹ Downey & Hawkins (2009) study merges industrial air pollutant concentration data via EPA’s year-2000 Risk-Screening Environmental Indicators (RSEI) project with demographic data drawn from the 2000 U.S. census. The study also suggests: a) Black communities experience “neighborhood toxic concentration levels that are on average 1.45 times as great as those experienced by the second most highly burdened group included in the study and 2.52 times as great as those experienced by the least burdened group included in the study; and, b) “low-income [B]lack neighborhoods and households experience a much higher pollution burden than do any other neighborhood or household type included in the study.”

¹⁷² Per the 2004 Annual Report of the State Oil & Gas Supervisor, the Inglewood Oil Field is the 17th largest oil field in the state (DOGGR, 2005).

concentrations of hazardous contaminants emitted from these refineries that can be “found in air, drinking water, and soil,” which are known to have adverse acute and chronic effects on human health, i.e. issues tied to respiratory, nervous, and cardiovascular system, carcinogenic effects, and impacts on development or reproduction (OEHHA, 2019). Indeed, race remains a powerful predictor of exposure to environmental hazards and the associated health risks.

Outside of struggling for environmental protections against exposure to hazardous wastes and air pollution, BIPOC and low-income residents have had to repeatedly advocate for their right to clean drinking water. Locals in Flint, MI, a majority-Black city with a poverty rate of over 41.5%, spent the last five years protesting contaminated water to city and state officials who denied there was a serious problem for months.¹⁷³ Tests and studies continued to unearth high lead content in water, and elevated blood lead levels in residents. And as organizations such as the World Health Organization (WHO) and Center for Disease Control (CDC) disclose, lead exposure is “especially harmful to children and pregnant women,” and can cause developmental delays, intellectual disabilities, learning difficulties, behavioral problems, as well as weight loss and seizures (Kennedy, 2016; Ebbs, 2018). Inducing a massive public health crisis for the disproportionate BIPOC and low-income locals of Flint, President Obama declared a federal state of emergency, and the EPA issued an emergency order – although, residents are still battling the outcomes of this environmental injustice (Kennedy, 2016).¹⁷⁴ And this is not just a

¹⁷³ In 2016, Flint’s population was “56.6% African American, compared with 14.2% of the state as a whole” and its household income was “half of the state’s median” (Agyeman, Schlosberg, Craven & Matthews, 2016 via U.S. Census Bureau). As of 2018, Flint’s demographics were 53% Black and 37% white alone (“not Hispanic or Latino”) as listed via the U.S. Census Bureau (2019b). Also see: NRDC, 2019; and Kennedy, 2016.

¹⁷⁴ In January of 2015, Flint was found to be in violation of the Safe Drinking Water Act (Kennedy, 2016). By 2017, “the federal court ordered Michigan state officials and the City of Flint to ensure that every Flint home had access to safe drinking water” (NRDC, 2019). However, new health issues tied to the Flint water crisis continue to emerge, as “90 people in the Flint area that the state said were sickened during a 2014-15 outbreak of Legionnaires’ disease, a sometimes fatal form of pneumonia caused by waterborne bacteria” (Childress, Ruble, Carah, & Ellis, 2019).

Flint issue.¹⁷⁵ Mass headlines in the summer of 2019 revealed kids in Newark, NJ presented with spiked lead levels, prompting the Natural Resources Defense Council (NRDC) to file a lawsuit against Newark, accusing the city of violating federal safe drinking water laws (*Democracy Now!*, 2019b). At the same time, children in cities spanning Detroit, New York City, and Baltimore rely on bottled water as they are told not to drink from potentially contaminated school water fountains.¹⁷⁶

BIPOC water protectors also agitate for water rights outside of urban hubs, especially many First Nation communities that are under disproportionate threat of climate destabilization in the U.S. and Canada. The 2016 Standing Rock demonstrations are now notorious for Indigenous Locals and allies protecting First Nation land and waters from Energy Transfer Partners' DAPL (Piette, 2018). And there are various such examples. Many Anishinaabe women have spent years protecting their waters from Enbridge Corporation, which is expanding a controversial pipeline that will increase the flow of Canadian tar sands crude oil into the Great Lakes region (*Honor the Earth*, 2019). The Vuntut Gwitchin in Canada's northernmost community in Yukon (known as Old Crow) became among the first Indigenous communities to declare a climate emergency, alongside Whitehorse (Yukon's capital) a week prior, as "Canada's North is warming three times faster than the global average" – impacting weather, wildlife, and Indigenous survivability (Josie & Hong, 2019). And amid the disappearance of Southeast Asian islands, Indigenous Pacific Islanders are fighting for their land, sovereignty, and self-determination as rising seawaters known as *fenua imi*, the aftermath of climate destabilization, swallows their lands and continues to demolish their homes, cultures, and identities that are tied to the local environment (Ganser,

¹⁷⁵ As of 2018, Newark's demographics are 50% Black, 36% Hispanic or Latino, and 10% white alone, "not Hispanic or Latino," as listed online via the U.S. Census Bureau (2019c).

¹⁷⁶ According to a report released by the U.S. Government Accountability Office (GAO), in 2016 or 2017, only "43% of districts, serving 35 million students, tested for lead. Of those, 37% found elevated levels and reduced or eliminated exposure" (GAO, 2018; Ebbs, 2018).

2019).¹⁷⁷

The toxic landfills forced on Afton residents in the 80s, Los Angeles' urban oil field emissions, and the hazardous water crises from urban centers to First Nation reservations disproportionately expose BIPOC and low-income communities across the nation to harm, and reinforce the veiled reality that “[t]he environmental protection apparatus in the U.S. does not provide equal protection for all communities” (Bullard & Johnson, 2000). Institutional racism and systemic classism perpetuate the green/brown polarization in environmentalism and sustainability ideation, foci, and practice. Environmental efforts bearing direct positive influence on the livelihoods of dominant groups and maintenance of the status quo generally receive zealous support. Meanwhile, human rights issues are overwhelmingly dismissed, disproportionately on the backs and at the expense of disadvantaged, dispossessed, marginalized, and oppressed BIPOC and low-income communities who bear the unequal burden of environmental injustices.¹⁷⁸ In spite of over three decades of EJ advocacy and struggle in the U.S., the outcomes to assure environmental protection for BIPOC remain disparate.

Global Anthropogenic Climate Destabilization

While the aforementioned prompted the EJ movement on the local and national level, intensifying climate destabilization is urgently impressing and inspiring a global commitment to sustainability, as witnessed in the past year's efforts toward launching the Green New Deal stateside, international climate strikes, and emerging technologies that are not used solely in the service of capitalism but instead attempt to interrupt ecological crises and/or appease the

¹⁷⁷ For instance, many Indigenous Peoples in the U.S. have consistently struggled against environmental injustices such as “the construction of uranium mines, nuclear waste sites, military development and nuclear testing, and oil and gas pipelines [that] are presented as economic development opportunities” (Agyeman et al., 2016).

¹⁷⁸ See: Sack, 2016; *Democracy Now!*, 2016; and Dietz, 2017.

expanding population of eco-driven consumers. The *National Climate Assessment Report* (NCA, 2018) presents some of the long-term future effects of climate destabilization to include temperature rises, a lengthened frost-free and growing season, changes in precipitation patterns, increased extreme weather events such as heat waves, droughts, and floods, stronger and more intense hurricanes, sea-level rise, an ice-free Arctic before mid-century, ocean acidification, and the increasing threat to BIPOC and vulnerable populations.¹⁷⁹ As the growing body of scholarly discourse, amassed empirical data, scientific consensus, and mass media news coverage corroborate: prioritizing global action to substantially reduce climate destabilization is requisite. Otherwise, increasingly unpredictable extreme weather, natural disasters, and unnatural anthropogenic events are likely to become significantly more frequent and catastrophic, and present “growing challenges to human health and safety, quality of life, and the rate of economic growth” (NCA, 2018).¹⁸⁰

In the last decade alone, we encountered peaks in human-induced climate shifts, including global warming, which are dramatically altering the trajectory of a healthy, habitable planet. The National Oceanic and Atmospheric Administration (NOAA) reported July 2019 as our Earth’s hottest month ever recorded since global documentation began in 1880, with rising global temperatures melting polar sea ice to historic lows. This marks 2019 as the second warmest year behind 2016 and one of the five warmest years on record – all of which have occurred since 2010.¹⁸¹

Scientists increasingly warn that our planet is nearing a potentially irreversible climate

¹⁷⁹ See: NASA, 2019b; NCA, 2018; and NCA, 2014.

¹⁸⁰ Cook et al. (2016) write: “The number of papers rejecting AGW [Anthropogenic, or human-caused, Global Warming] is a miniscule proportion of the published research, with the percentage slightly decreasing over time. Among papers expressing a position on AGW, an overwhelming percentage (97.2% based on self-ratings, 97.1% based on abstract ratings) endorses the scientific consensus on AGW” (NASA, 2019).

¹⁸¹ See: NOAA, 2019b; 2019c; and Rice, 2019.

tipping point since the 2013 reports of global CO₂ levels topping 400 ppm for the first time in human history (*Democracy Now!*, 2013; NASA, 2019b).¹⁸² The challenge is limiting rising global temperatures below the 1.5°C IPCC (2018) recommendations and the Paris Agreement (UNFCCC, 2018b). According to the EPA (2019) and NASA (2019b), human activities are responsible for almost all of the increases in greenhouse gas (GHG) emissions – namely our dependence on fossil fuels – known for adding chemicals such as heat-trapping CO₂ into the atmosphere and warming the planet.¹⁸³ As scientists relay, these emissions are far exceeding the threshold for a safe planet, aggravating human-caused global warming, and markedly prompting increases in unnatural climate disasters (Ibid; *Democracy Now!*, 2013).

Global climate emissions of CO₂ grew by 1.7% in 2018 to a historic high of 33.1 gigatonnes (Gt) CO₂, and have increased by almost 50 percent since 1990.¹⁸⁴ The latest International Energy Agency (IEA) data from its *Global Energy & CO₂ Status Report* displays the new records of CO₂ emissions are predominantly powered by high energy consumption (up 2.3%) due to a “robust global economy.”¹⁸⁵ The world’s largest GHG emitters, China, the U.S., and the European Union (EU) produce over half of the total global emissions (52%), with electricity/heat generation (43%) and transport (25%) accounting for over two-thirds of total CO₂

¹⁸² As leading climate scientist Michael Mann expressed in an interview with Amy Goodman in 2013, 400 parts per million (ppm) refers to “the number of molecules of CO₂ for every million molecules of air; 400 of them are now CO₂. Just two centuries ago, that number was only 280 ppm.” That number has since risen, with scientists warning that crossing the 450 ppm can lead to dangerous and irreversible climate destabilization (*Democracy Now!*, 2013).

¹⁸³ Via OECD website (2018): “Greenhouse gases refer to the sum of seven gases that have direct effects on climate change : carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). The data are expressed in CO₂ equivalents and refer to gross direct emissions from human activities. CO₂ refers to gross direct emissions from fuel combustion only and data are provided by the International Energy Agency. Other air emissions include emissions of sulphur oxides (SO_x) and nitrogen oxides (NO_x)...”

¹⁸⁴ For more, see: UN, 2019; IEA, 2019; 2019b; and Friedrich, Ge, & Pickens, 2017.

¹⁸⁵ The 2018 IEA report (2019) states the increase of energy emissions as also driven by weather conditions, with coal combustion the single largest source of global temperature increase, accounting for 30% of all energy-related CO₂ emissions.

emissions in 2017 (IEA, 2019).¹⁸⁶

Reviewing the transport sector alone, nearly 90% of international trade is supported by at least 90,000 marine vessels across our world's oceans (Oceana, 2019; IMO, 2014). And shipping relies on less refined fossil fuels as an energy source, with these emissions known to increase risks to human health and induce premature death, e.g. via lung cancer, cardiovascular disease, and childhood asthma (T&E, 2019).¹⁸⁷ The latest estimates presented by the International Council on Clean Transportation (Olmer et al., 2017) for GHG transport emissions report that total global shipping emitted 932 million tonnes of CO₂ in 2015, accounting for about 2.6% of the total emission volume in 2015.¹⁸⁸ Likewise, global aviation produced 895 million tonnes of CO₂ in 2018, averaging 2% of total emissions (ATAG, 2018).¹⁸⁹ Applying these numbers to the most recent 2018 IEA statistics, were global shipping and aviation a country they would rank

¹⁸⁶ As the report states: "While emissions from all fossil fuels increased, the power sector accounted for nearly two-thirds of emissions growth. Coal use in power alone surpassed 10 Gt CO₂, mostly in Asia. China, India, and the United States accounted for 85% of the net increase in emissions, while emissions declined for Germany, Japan, Mexico, France and the United Kingdom.

¹⁸⁷ As a study by Corbett et al. (2007) indicates, "shipping-related PM emissions are responsible for approximately 60,000 cardiopulmonary and lung cancer deaths annually, with most deaths occurring near coastlines in Europe, East Asia, and South Asia."

¹⁸⁸ An International Council on Clean Transportation (ICCT) report by Olmer et al. (2017) indicates three classes of ships between the years 2013-2015 "accounted for 55% of totally shipping CO₂ emissions: container ships (23%), bulk carriers (19%), and oil tankers (13%)." Thus, it is important to consider the impact of a global culture of hyper-consumption fuelled by global capitalism as it is tied to our reliance on international shipping.

In addition to CO₂, "ships emit various global warming pollutants, including black carbon (BC), [sulfur dioxide (SO₂)], nitrogen oxides (NO_x) and nitrous oxide (N₂O). These pollutants all contribute to global climate change either directly, by acting as agents that trap heat in the atmosphere, or indirectly by aiding in the creation of additional greenhouse gases" (Oceana, 2019). Pollution via SO₂, a precursor to acid rain, is known for environmental issues such as deforestation and acidifying waterways, as well as declines in human health, including severe consequences associated with the respiratory system (QG, 2017).

As Pearce (2009) writes, the International Maritime Organisation (IMO) ruled only a decade ago that cargo ships would be capped at 5,000 tons of sulfur emissions annually, equal to about 50 million typical cars. With around 800 million cars worldwide emitting just under 79,000 tons of sulfur, Pearce estimates that "16 of the world's largest ships can produce as much lung-clogging sulphur pollution as all the world's cars."

¹⁸⁹ Per the UNFCCC (2016), ships and aviation estimated to grow "at a combined rate of 3-5 percent annually."

between Russia and Japan as the world's 6th largest producer of CO₂ emissions.¹⁹⁰ And while international shipping and aviation have remained exempt from obligations to reduce carbon emissions under the 1997 Kyoto Protocol and 2015 Paris Agreement – with shipping transport the least regulated sector in regards to air pollution – for the first time, global shipping has agreed to reduce GHG emissions in half by 2050 (Garcia & Lin, 2018).¹⁹¹

In our expanding globalized economy, mitigating climate destabilization is steadily becoming a cornerstone of social, economic, political and cultural discourse, with international sustainability efforts attempting to tackle a host of interconnected issues. Yet, publicized eco-agendas around emissions frequently task citizens with tempering behaviors and activities rather than regulating and monitoring corporations and governments, and holding CEOs and public officials responsible and accountable (Cambell & Mollica, 2009). For instance, environmental and sustainability initiatives often suggest people commute via rideshare, vanpool, and/or public transportation, and decrease plane travel, instead of implementing tighter corporate transport emission regulations, moving toward cleaner transport fuels, and/or requiring more efficient

¹⁹⁰ Data compiled by the IEA on CO₂ emissions from fuel combustion provides the 2018 country emission percentages in ranking, including the top producers: China (28%), the U.S. (14%), the EU (12%), India (7%), the Russian Federation (5%), and Japan (3%) (IEA, 2019; 2019b).

Note that the numbers for CO₂ emissions from shipping (2015) fall three years behind those updated for aviation and global total emissions (2018), therefore the ranking could be higher/lower based on 2018 data for shipping. However, Olivier et al. (2016) confirm shipping would rank 6th largest CO₂ emitter for 2015 (Olmer et al, 2017).

¹⁹¹ Greenhouse gas emissions via transport are important considering the aforementioned numbers. Nonetheless, as Sharpe (2016) reminds, we need to emphasize the historical impact of shipping as a “key point in the beginning of global capital,” which was undertaken when millions of unnamed Africans were forced across the Atlantic on some of the first trade ships via the Middle Passage – human beings labeled as cargo – who were abducted and trafficked through international waters via utterly violent, grotesque, and inhumane conditions in the transatlantic slave trade, only to face hundreds of years of enslavement via the U.S. settler colonial project (Sharpe, 2016).

Globalization is nothing new, with shipping's gruesome past still haunting the present (Ratcliffe, 2019). Today, an estimated 40.3 million women, men, and children are forced into a modern slave trade. This includes 10 million children, women and girls who disproportionately account for 99% of the victims of the commercial sex industry and 58% in other sectors, and around \$150 billion worth of illegal profits generated via forced labor in the private U.S. economy alone. And although issues such as transshipment as well as cargo vessels evading detection have raised fears for the ability to hide human trafficking activities, most victims today trafficked within their own countries (ILO, 2019; Antislavery.org, 2019).

engines (EPA, 2019b; Pearce, 2009).¹⁹² And though prompting each citizen to engage environmental responsibility is essential, effective, and emotionally gratifying, these responses remain structurally insignificant because they fail to alter the underlying global neoliberal model, which perpetuates ecological havoc that astronomically exceeds these individual acts.¹⁹³

Despite various efforts to address rising environmental stressors, many people remain indifferent to the pangs of our Earth unless ecological degradation directly threatens their livelihoods and wellbeing. Anthropocentric interests have certainly generated progress on the sustainability front. Yet, the extent of improvements is questionable. Mainstream environmental and sustainability approaches that actually are engaged remain centered on environmental actions that tend to the natural world (i.e. conservation, preservation, and emerging technologies), while upholding a company's core, and/or refraining from centering human rights and social justice issues.¹⁹⁴ In instances people are taken into consideration, it is typically

¹⁹² Per the latest data from the EPA (2019c), the largest source of GHG emissions in the U.S. (79%) from 1990-2017 was derived from people burning fossil fuels via the transportation (29%), electricity (28%), and industry (22%) sectors. The remaining GHG contributors are commercial and residential (12%), and agriculture (9%).

Reviewing transportation, “freight trucks, commercial aircraft, ships, boats, and trains, as well as pipelines and lubricants” consist of half (14.5%) of all transportation-related emissions, while “passenger cars and light-duty trucks, including sport utility vehicles, pickup trucks, and minivans” make up the remainder. A rather loose estimate based on this EPA data would suggest that big business averaged at least 44% of the total U.S. GHG emissions from 1990-2017: 14.5% of transportation emissions, 22% via the industry sector, and at least 8.4% via industry-used electricity. Note that these estimates are not-inclusive of the commercial and residential sector, agriculture, or electricity-related emissions via transportation (EPA, 2019c).

That being said, such data is a bit murky due to difficulty in capturing numbers that reflect both direct *and* indirect emissions. For instance, the IPCC report that direct global anthropogenic emissions from livestock represent 5% of the total. The UNs Food and Agriculture Organization (FAO) data, which includes both direct and indirect emissions, report the full life cycle of livestock emissions at 14.5%. As such, the FAO's offers a more nuanced method to assess environmental impacts, i.e. FAO includes transportation and processing emission data for livestock to arrive at 14.5% of GHG emissions worldwide (Mottet & Steinfeld, 2018). Thus, the indirect emissions of international trade extend beyond shipping data alone.

¹⁹³ Of course, these prompts are a necessary part of the overall strategy to address such issues.

¹⁹⁴ Neoliberalism often permeates projects without altering the underlying white supremacist, anti-BIPOC matrix of domination, thus perpetuating injustices and varying levels of harm, i.e. the hegemonic enculturation of hyper-consumerism that induces and propels continued dehumanization (i.e. labor exploitation), natural resource depletion, and corporate toxic waste production. See: Tuck & Yang (2012), *Decolonization is not a metaphor*.

concerning how ecological issues adversely impact first-world elites, and/or subsequently selecting responses that benefit their interests.¹⁹⁵ And as witnessed with the mass protests of the DAPL from the spring of 2016 until the winter of 2017, environmental issues are often transported away from communities with greater access and/or proximity to privilege and whiteness and instead forced onto BIPOC communities that become “sacrifice zones,” displaying how race and socioeconomic status continue to be major factors in determining environmental decisions and outcomes (Bullard & Johnson, 2000).¹⁹⁶

The Ecological Impacts of Greenwashing

The sustainability movement that is present globally advocates urgent collective action to end poverty and hunger; ensure health, safety, inclusive quality education and economic growth for all; achieve gender equality; reduce inequality within and among countries; protect and promote sustainable ecosystems; combat climate destabilization and its impacts; decrease biodiversity loss; and preserve our oceans and forests (UN, 2015). But, as the body of critical literature details, the ongoing struggle is finding how best to approach planetary needs *and*

For instance, institutions such as universities often engage valuable environmental propositions such as implementing solar energy panels, setting up recycling stations, or funding sustainability research, without addressing the institution’s dismissed and/or often unconscious ecological impacts, i.e. production of exorbitant amounts of waste, use of harmful rodenticides, lack of equity, diversity, and inclusion in student body or professoriate populations, lack of critical pedagogy and ethnic studies departments and courses, and/or requisite oppressive hegemonic curricula.

¹⁹⁵ See: Temudo, 2012; Campbell & Mollica, 2009; Büscher, 2010; Ferguson, 2006; and Oates, 1999.

¹⁹⁶ The DAPL was initially designed to run above Bismarck and Mandan, ND – cities with an approximately 90 percent white demographic (U.S. Census Bureau, 2019d; 2019e). After local protests, Energy Transfer Partners’ \$3.7 billion project was eventually rerouted to First Nation reserves, bulldozing sacred grounds. The white citizens of Bismarck and Mandan thus experienced desired outcomes and assured protection from their protests, at the expense of the Standing Rock Sioux Nation who peacefully yet adamantly raised the exact concerns. After ten months, activists, allies and First Nation community members were ultimately unable to protect the water, land, and Native people, who faced varying forms of violence protesting the DAPL (Sack, 2016; *Democracy Now!*, 2016; Dietz, 2017).

It is important to note that major news stations reported the Keystone Pipeline, approved by the 45th president in 2017, spilled 383,000 gallon of crude oil, covering an estimated half-acre of North Dakota wetlands on October 31, 2019 (Rueb & Chokshi, 2019; Knowles, 2019).

human needs, particularly when the global north continues to drive environmental and sustainability discourse, conceptualization, regulation, and operationalization – emphasizing development and economic growth over corporate responsibility.¹⁹⁷

Our global situation is such that “sustainability is not viable based on the economic logic” that is supported by neoliberal policies of deregulation and state withdrawal.¹⁹⁸ In an era guided by the “neoliberal political economy” and turbulent climate destabilization, many of the resulting sustainability proposals and projects conducted are consequently greenwashing, public relations (PR) initiatives that “[fuel and obscure global inequality]” instead of imperative eco-conscious responses that are necessary for the sustenance of our interconnected global ecology.¹⁹⁹ The word sustainability and its applicability should thus be highly contested, since “the term frequently serves as a PR strategy, a green veneer for business as usual, rather than a driver of fundamental change” (Thiele, 2013).

As Campbell & Mollica (2009) explain, efforts today are often credited as sustainable simply if they are “less damaging to the environment and more just in...outcomes with respect to both the developing world and future generations.” A prime example is ExxonMobil, which spent millions of dollars in green initiatives to regain the public’s trust in the company two decades following the Exxon Valdez spill of 10.8 million gallons of crude oil in Prince William Sound, Alaska, which devastated local wildlife populations, marine food chains, human consumption, and Alaskan Native populations (Henn, 2017; Hadhazy, 2009). As a comprehensive report by the *LA Times* in 2015 revealed, Exxon’s own team of researchers, engineers, and scientists investigated and predicted the negative effects of fossil fuels on global

¹⁹⁷ See: Temudo, 2012; Campbell & Mollica, 2009; Büscher, 2010; Ferguson, 2006; and Oates, 1999.

¹⁹⁸ See: Larrain, Leroy, & Nansen, 2003; and Agyeman, Bullard, & Evans, 2010.

¹⁹⁹ See: Büscher, 2010; and Agyeman, Bullard, & Evans, 2010.

warming almost 25 years ago. Yet, this research did not prevent the company from investing in the outcomes of global warming. Since 2012, ExxonMobil and Imperial Oil “have held the rights to [over] one million acres in the Canadian Beaufort Sea” that it “bid \$1.7 billion in a joint venture with BP” in anticipation of ice breakup due to warming, making Arctic exploration and drilling a worthwhile and viable economic investment.²⁰⁰ Nor did it motivate the company to seek alternatives to fossil fuels, as visible in ExxonMobil’s 2016 Olympic games advertising campaign that presented the company’s contributions to “mapping the oceans,” “turning algae into biofuel,” and “defeating malaria” – none of which combat its own negative environmental impact. In fact, the company *opted out* of investing in renewable energy sources in 2015, because, as CEO Rex Tillerson (later the 45th president’s first Secretary of State) said in an investor meeting: “We choose not to lose money on purpose” (Henn, 2017).²⁰¹ This means that ExxonMobil internally studied global warming thoroughly, recognizes the catastrophic implications of its pursuit of fossil fuels on climate destabilization due to mounting evidence and expected climatic outcomes, presents various greenwashing initiatives, philanthropic efforts, and a misleading environmentally-sound front, yet, vigorously pursues its economic interests at the very high cost of consciously aggravating global ecological degradation.²⁰²

Admittedly, sustainability has proven valuable on a theoretical level, but the corporate bid for garnering profits outweigh ecological concerns. Aside from ExxonMobil, General

²⁰⁰ Nearly 70 percent of Canadian petroleum company Imperial Oil is owned by ExxonMobil. For more, see: Jerving, Jennings, Hirsch, & Rust, 2015.

²⁰¹ Per the University of Massachusetts Amherst’s Political Economy Research Institute (PERI), ExxonMobil is ranked 11 on the Greenhouse list, 19 on the Toxic Air Polluter list, and 22 on the Toxic Water list in the U.S. (PERI, 2019).

²⁰² Note that fossil fuels impact climate destabilization (and global warming specifically) on a number of fronts via drilling, pipelines, infrastructures, processing plants, and pump stations – not to mention, the impact of oil pollution from spills and burning fuels (known as the largest source of CO₂ emissions) (Jerving, Jennings, Hirsch, & Rust, 2015).

Electric, DuPont, BP, Dow Chemical, and General Motors are just a few of the major corporations misrepresenting a company's environmental character via greenwashing initiatives (Allen, 2009). With little incentive and/or intention to shift away from neoliberal globalization toward eco-conscious models, the cumulative anthropogenic impact of numerous MNC heads and governing officials that continue to conduct standard business practices under the guise of minimal sustainability efforts is grossly perpetuating inescapable and potentially irreversible ecological damage worldwide.

Corporate and governmental anthropogenic threats are dramatically and increasingly surpassing our planet's capacity to continue forth without catastrophic ecological consequences. This is no more apparent than the Brazilian government's inaction in the Amazon rainforest in August of 2019, which was left in scorching flames for nearly three weeks without mainstream media attention, its plumes so far-reaching the miles-long haze of smoke was visible via satellite imagery.²⁰³ The majority of the land is said to have been set ablaze by ranchers and loggers for agricultural expansion, i.e. to clear ground for cattle as Brazil is the world's largest beef exporter, providing nearly 20 percent of the global export.²⁰⁴ However, rising deforestation in the Brazilian Amazon, encouraged by newly elected Brazilian President Jair Bolsonaro, is the result of additional factors including "illegal logging, mining, land speculation, and urban development" (Rainforest Alliance, 2019).²⁰⁵ Brazil's space research center, the Instituto Nacional de Pesquisas Espaciais (INPE), detected over 72,000 fires in the Amazon in the first

²⁰³ See: NASA, 2019c; INPE, 2019; and Copernicus, 2019.

²⁰⁴ See: Mackintosh, 2019; Yueng, 2019, Lopes, 2019; and Zia, Hansen, Hjort, & Valdes, 2019.

²⁰⁵ The impact of the Amazonian fires is directly tied to global consumerism. In 2017, insiders identified two of Burger King's largest soy suppliers, Cargill and Bunge, as responsible for a million-plus acre of forest clearing in the Brazilian Amazon. While the 500-mile Cerrado savanna experienced 320,000 acres of Cargill operated deforestation from 2011-2015, Bunge cleared 1.4 million acres, with Mighty Earth's *The Ultimate Mystery Meat* report suggesting much of the deforestation was driven by soy. But this only accounts for Brazil. Mighty Earth's report placed "Bolivia's deforestation rate at more than 700,000 acres per year from 2010 to 2015" (Nix, 2017).

eight months of 2019 – a rise of over 84 percent from the same eight-month period in 2018.²⁰⁶

Various publications attribute the accelerating deforestation and surge in fires to the new president who, per media claims, denies his ties to the destruction and instead blamed NGOs and environmental groups for the fires without initially issuing a stop.²⁰⁷

An estimated 7,200 square miles of the Brazilian Amazon is said to have been lost through July 2019 – “an aggregated area nearly the size of New Jersey.” These raging wildfires took place in the “most biodiverse ecosystem on land” and home to millions of life forms, including trees that absorb massive amounts of carbon dioxide and help curb climate destabilization (Borrunda, 2019; Zimmer, 2019).²⁰⁸ This means that because of unfettered capitalist pursuits, countless vegetation that have existed for millennia are lost, some that will take hundreds of years to regrow; unnumbered vertebrates and invertebrates died from the fires; unknown biodiversity may remain undiscovered; and our global community will inevitably face intensifying climate destabilization and associated ecological devastations without major environmental protection and intervention.

Moreover, Indigenous forest defenders – many who have protested neocolonial capitalist pursuits such as these fires and illegal logging – are being forcibly displaced, dispossessed, and

²⁰⁶ See: Paraguassu, 2019; and Rainforest Alliance, 2019.

²⁰⁷ Although the data vary, a number of reports suggest the INPE recorded at least 36,000 fires in the Amazon rainforest in the month of August alone, accounting for almost half of all fires during the eight-month period (Dwyer, 2019; *Al Jazeera*, 2019), while Copernicus (2019) suggests four times (4,000) as many fires as compared to this time last year (1,000).

For this and more on this international crisis, see: INPE, 2019; Copernicus, 2019; Paraguassu, 2019; Meredith, 2019; Mackintosh, 2019; and Woodward, 2019.

²⁰⁸ Per Welch (2019): “In fact, deforestation, fire, and climate change already work synergistically in the Amazon. In recent years, climate change has sparked droughts that let wildfires burn bigger and longer. Between 2003 and 2013, forest clearing dropped by 76 percent, but the increase in wildfire, especially during the drought of 2015, erased half the increased absorption of CO₂.”

Also see: Mackintosh, 2019; Yueng, 2019, Lopes, 2019; and Rainforest Alliance, 2019.

are at an even greater risk of losing not only their cultures and languages, but their lives. In early November of 2019, nearly all major news stations reported 26-year-old Paulo Paulino Guajajara, Amazon Guajajara leader and an Indigenous forest guardian, was ambushed, shot, and killed by illegal loggers, who also wounded another guardian.²⁰⁹ Prior to his murder, Paulino understood he was subject to violence – three previous guardians had been killed and many threatened – and he had voiced his fears to Reuters’ reporters about the dangers he faced attempting to protect “our land and the life on it, the animals, the birds, even the Awá who are here too.”²¹⁰ Following Paulino’s murder, Sonia Guajajara (2019), leader of Brazil’s pan-Indigenous organization *Articulação dos Povos Indígenas do Brasil (APIB)*, articulated a cogent message on *Twitter*:

It’s time to say enough of this institutionalized genocide! Stop authorizing the bloodshed of our people!²¹¹

In the past decade, over 300 people have been killed in attempt to protect the land, according to the NGO *Comissão Pastoral da Terra (CPT)*, with many more deaths left uncounted (McCoy, 2019). Prior to Guajajara’s killing, five Indigenous leaders were massacred, and six other unarmed Indigenous guards were wounded in a calculated attack against Indigenous land defenders in Tacueyó, Cauca, Colombia at the end of October of 2019. Among those victims was Cristina Bautista, “leader of the semi-autonomous Indigenous reservation of Nasa Tacueyó,”

²⁰⁹ For details, see: *Al Jazeera*, 2019b; McCoy, 2019; and Stublely, 2019.

²¹⁰ The Awá are an uncontacted tribe who are particularly vulnerable to the impact of illegal logging and deforestation. For more, see: Boadle, Benassatto, & Baum, 2019; and McCoy, 2019.

²¹¹ Per Sonia Guajajara’s (2019) own words following the murder of Paulo Paulino Guajajara via *Twitter*: “Território Araribóia perde mais um Guardião da floresta por defender o nosso território. Paulinho Paulino Guajajara foi morto hoje numa emboscada por madeireiro . É hora de dar um basta nesse genocídio institucionalizado !Parem de autorizar o derramamento de sangue de nosso povo!”

As translated via *Google Translate*: “Araribóia territory loses another Forest Guardian for defending our territory. Paulino Guajajara was killed today in an ambush by a logger. It’s time to stop this institutionalized genocide! Stop authorizing the bloodshed of our people!”

known for her defense of Indigenous rights to autonomy and land.²¹² According to the Institute for Development and Peace Studies (INDEPAZ, 2019) over “700 social leaders, mostly Afro-Colombian and Indigenous activists, have been murdered in Colombia” since the 2016 Peace Accords (*Democracy Now!*, 2019c).²¹³

The ECOSOCs (2017) PFII report relays that these murders are rapidly rising, with 281 human rights defenders reported killed in 2016 – compared to 185 in 2015, and 130 in 2014. The majority of these attacks were related to land, Indigenous rights, and environmental rights – predominantly in six countries of Latin America and Asia – with estimates revealing that 40 to 50 percent of those killed were Indigenous Peoples.²¹⁴ As the PFII states:

Many other [I]ndigenous human rights defenders are subjected to violent attacks and threats, enforced disappearances, illegal surveillance, travel bans, blackmail, sexual harassment and other forms of violence and discrimination. It is also of concern to the Forum that human rights defenders are frequently subjected to false claims of criminal activities or terrorism (ECOSOC, 2017).

Indeed, the cost of neoliberalism is deadly for BIPOC (Nelson, 2018). Beneficiaries of the thriving economic order are afforded desired outcomes, much in part to the perpetual first-world framing of BIPOC, which legitimizes marginalization, dispossession, and injustice imposed on BIPOC and intersectional communities (Key, 2012). Rather, the dominant ideological constructs via cultural imperialism endorse capitalist pursuits and help maintain the hegemonic order. To the extent that environmentalism and sustainability are taken seriously, and broad political, cultural, social, and economic advances are made that actually improve

²¹² See: *Democracy Now!*, 2019c; and Wallis, 2019.

²¹³ As translated from the most recent study produced by INDEPAZ, Marcha Patriótica, and Cumbre Agraria “Between January 1, 2016 and July 8, 2019, 734 social leaders and Human rights defenders have been killed in Colombia-132 of the cases occurred in 2016, 208 in 2017, 282 in 2018 and 112 in the year 2019 (INDEPAZ, 2019).

²¹⁴ This is in comparison to numbers reported in a press release via the NGO Global Witness (2018), which stated 207 environmental activists were killed in 2017, approximating to four murders every week. Utilizing PFII’s numbers would equate to about five murders a week.

environmental health per first-world standards, human rights abuses such labor exploitation, varying forms of racial injustice, and violence often coexist (and frequently occur simultaneously).²¹⁵

Take the World Wildlife Fund (WWF), one of the world's largest conservation groups, which was recently exposed for violating national and international law via an illegal land grab and human rights abuses in backing a conservation zone in the Congo Basin “without the free, prior, and informed consent of the people who rely on that land for survival” (Longo, 2018c; 2018b). In December 2018, Survival International (SI) released letters signed by over 100 people from six villages in the Republic of Congo (the Baka, as well as Bakwele and Bantu), which state the groups have been suffering since the WWF's project to turn the biodiversity hotspot on Baka land known as Messok Dja into a national park (Longo, 2018c).²¹⁶ SI released another letter to the European Commission (EC) this past August 2019 signed by hundreds of Baka pleading the EC (one of the main funders of the project) to visit and investigate the human rights violations by the ecoguards (Survival International, 2019). As Baka letters, SI reports, and increasing new coverage reveal, the people are prohibited from their sacred lands, lack access to the rainforest for traditional sources of food, water, and natural medicine, face malnutrition, and are now confronted with “human rights abuses committed by ecoguards funded and supported by

²¹⁵ Note that the resulting outcomes and standards of improvement are based on first-world measurements. Even places or projects venerated for being environmentally-conscious and/or progressive repeatedly fail to address the needs, rights, and dignity of BIPOC communities (Temudo, 2012; Bücher 2010).

For example, over two dozen plants and animals listed as “endangered,” “threatened,” or “species of concern” in Oregon are entitled to special protections (Williams, 2016; Muldoon, 2014). Alongside such environmentalism for which Portland is regularly lauded, a report published in 2014 by Portland State University scholars and the Coalition of Communities of Color (CCC) uncovers grave disparities faced in Portland by Black locals compared to whites as a result of continued institutional racism, systemic inequities and injustices, and extant displacement. As the CCC reported, human rights assaults directed against Black people have occurred historically and continue to exist in tandem with gentrification and a thriving environment for many whites, especially in regards to “education, economic development, health, housing and employment” (Bates & Curry-Stevens, 2014).

²¹⁶ A WWF report suggests the project will affect 48 communities of Baka and their Bakwele neighbors who all depend on the Messok Dja forest to survive (Longo, 2018; 2018b; and 2018c).

the WWF.”

The revelations following the SI release of Baka letters have triggered inquiries in the U.S. and Europe, with German funding on hold amid the ongoing human rights investigations for the Salonga National Park, a WWF wildlife reserve where ecoguards have been accused of gang rape and torture.²¹⁷ Thus, the predominantly white-led WWF’s efforts, conducted to protect the ecosystem and the non-human inhabitants of the Congolese rainforest, is neocolonial conservation that perpetuates deep-rooted issues of global anti-Blackness and white supremacy via human rights abuses of the Black Indigenous Locals, neglects the historical legacy, ties to, and cultivation of their ancestral lands, and dismisses of their verbal and written admonitions.²¹⁸ This issue blatantly evidences how the global north ultimately decide the guidelines to garner their desired benefits from environmental and sustainability efforts and advances, which regularly minimize, disregard, and violate the dignity, protection, rights, and lives of BIPOC and low-income communities at the intersections of marginalization (whether intentionally or not).

As the world literally and figuratively burns alive, the well-crafted interlocking systems of domination in existence are ultimately failing even its curators, as is visible with increased climate destabilization, intensifying unnatural disasters, escalating air, water, and land pollution, and the rapid declines in biological, cultural, and linguistic diversity. The acquisitions of the global hegemony, upheld and perpetuated through the matrix of domination, fail to support the sustainability and ecological health of our interconnected planet, whether or not the plutocrats and oligarchs benefitting from the status quo admit to or recognize such. Eco-projects can no longer neglect and outright ignore the root of these issues: the complicit involvement of first-

²¹⁷ See: Engert, Baker, & Warren, 2019; and 2019b.

²¹⁸ Per observation of the WWF’s “Leadership” page, the President and CEO, senior management team, board of directors, and honorary board of the WWF is predominantly white (with approximately 45 white members, under 10 non-white members, and ostensibly no Black men represented (WWF, 2019).

world, imperialist, capitalist, white supremacist, hetero-patriarchal, settler-colonists in stimulating ecological adversity to sustain empire instead of ecological wellbeing. Beyond being unjust and unethical, the rapid declines of local and global BCD, the impact these disappearances have on our global community, and the disproportionate consequences BIPOC and those at the intersections historically and enduringly are forced to encounter, resist, and attempt to survive through as a result *are no longer sustainable*.

International Sustainability Efforts

The expansive body of discourse, innumerable conferences, and countless declarations and outcome documents centering on climate destabilization and sustainability allude that international initiatives are making significant headway in developing, actualizing, and achieving collective goals. However, efforts to impede the cumulative impacts of mounting anthropogenic climate destabilization and its influence on the lives of those most vulnerable remain insufficient. Indeed, the *Millennium Development Goals Report 2015* claimed to decrease undernourished people in the developing regions by almost half, increase both access to primary education and female enrollment, and help lift more than one billion people out of extreme poverty.²¹⁹ Yet, as the report states, “For those who have been able to climb out of poverty, progress is often fragile and temporary; economic shocks, food insecurity and climate change threaten to rob them of

²¹⁹ The data used in the MDGs 2015 report are based on five economic classes defined by the International Labour Organization: Developed middle class and above (above \$13); Developing middle class (between \$4 and \$13); Near poor (between \$2 and \$4); Moderately poor (between \$1.25 and \$2); and Extremely poor (less than \$1.25). However, a study by the World Bank “shows that about half of the 155 countries lack adequate data to monitor poverty and, as a result, the poorest people in these countries often remain invisible” (UN, 2015b). Aside from the large data gaps, “The absolute number of people living in extreme poverty globally fell from 1.9 billion in 1990 to 1 billion in 2011. Estimates suggest that another 175 million people have been lifted out of extreme poverty as of 2015. Thus, the number of people worldwide living on less than \$1.25 a day has also been reduced by half from its 1990 level” (UN, 2015b).

Note that a World Bank press release (2018) states: “Living on less than \$3.20 per day reflects poverty lines in lower-middle-income countries, while \$5.50 a day reflects standards in upper-middle-income countries.”

their hard-won gains” (UN, 2015b). Moreover, BIPOC are represent the largest proportion of the estimated 825 million people living in extreme poverty, with 780 million of the 795 million people undernourished globally living in developing regions:

The overwhelming majority of people living on less than \$1.25 a day reside in two regions—Southern Asia and sub-Saharan Africa—and they account for about 80 per cent of the global total of extremely poor people. Nearly 60 per cent of the world’s 1 billion extremely poor people lived in just five countries in 2011: India, Nigeria, China, Bangladesh and the Democratic Republic of the Congo (ranked from high to low) (UN, 2015b).²²⁰

An overview of the 2015 MDG report reveals that alongside suggested improved conditions for many, the shortcomings are staggering:

Despite enormous progress, even today, about 800 million people still live in extreme poverty and suffer from hunger. Over 160 million children under age five have inadequate height for their age due to insufficient food. Currently, 57 million children of primary school age are not in school. Almost half of global workers are still working in vulnerable conditions, rarely enjoying the benefits associated with decent work. About 16,000 children die each day before celebrating their fifth birthday, mostly from preventable causes. The maternal mortality ratio in the developing regions is 14 times higher than in the developed regions. Just half of pregnant women in the developing regions receive the recommended minimum of four antenatal care visits. Only an estimated 36 per cent of the 31.5 million people living with HIV in the developing regions were receiving [Antiretroviral Therapy (ART)] in 2013. In 2015, one in three people (2.4 billion) still use unimproved sanitation facilities, including 946 million people who still practise open defecation. Today over 880 million people are estimated to be living in slum-like conditions in the developing world’s cities (UN, 2015b).

²²⁰ The 2015 MDGs report does not explain if the people “lifted out of” *extreme* poverty instead live in poverty and the sustainability of such, i.e. what are the improved earnings and quality of life per Larrain, Leroy & Nansen’s (2003) dignity line?

Thus, it is fundamental to ask such questions as: How much have the economic and social conditions improved, if at all? How much is the increased earning? And is this earning sustainable and/or likely to improve? What of inflation? What have the MDGs truly accomplished beyond actual numbers? Rather, how do we quantify quality of life? How do the actual individuals feel about their conditions and quality of life, e.g. via Larrain, Leroy & Nansen (2003) regarding health, wellbeing, and basic human rights as consistent with collective rights? Are global north standards being used to measure such, or are the individuals and communities themselves defining their standard of living? In what ways does continental debt due to a history of colonialism maintain poverty? And in what ways are the elite first-world and its benefactors offering reparations, clearing debts, and actually assisting in approaches that are meaningful and helpful to the people per their own standards? Is this first-world-guided effort actually helpful to BIPOC, low-income people, and those at the intersections of marginalization? If the MDGs are improving conditions, what do the most vulnerable feel these international goals doing? How do we move toward holistically, global-south directed and implemented sustainability efforts?

That is, the most vulnerable, marginalized populations were and are still being “left behind” due to “sex, age, disability, ethnicity or geographic location.” The predominant ongoing global issues per the report include: gender inequality, major gaps between the wealthiest and poorest households, millions still living in poverty and hunger without access to basic services, conflicts remaining the biggest threat to human development, climate change and environmental degradation undermining progress achieved, and poor people suffering the most from climate change” (UN, 2015b).²²¹

Noting grave inequities and uneven progress, the report acknowledged “eliminating the remaining extreme poverty and hunger will be challenging.” Nevertheless, the era of UNESCO’s MDGs has since ushered in an extension in line with its touted accomplishments, agendas, and priorities. At the 2015 UN Sustainable Development Summit in New York, the high-level GA plenary drafted: *Transforming our World: the 2030 Agenda for Sustainable Development*, which seeks “to better meet human needs and the requirements of economic transformation, while protecting the environment, ensuring peace and realizing human rights,” and adopted the now notorious SDGs: an urgent global call to action to address and resolve integrated issues via multilateral partnerships (UN, 2014).²²²

Within three months of establishing the SDGs, the UNFCCC’s COP21 took place in Paris. Parties to the UNFCCC adopted the 2015 *Paris Agreement*, the non-binding global project aimed at uniting our world’s countries to collectively reduce the global average temperature and GHGs,

²²¹ Per the report, “poor people” face the greatest threat from environmental degradation since their “livelihoods are more directly tied to natural resources and as they often live in the most vulnerable areas” (UN, 2015b).

²²² The 17 SDGs drafted at the UNGA in September of 2015 (Resolution 20/1) include: 1) No poverty; 2) Zero hunger; 3) Good health and well-being for people; 4) Quality education; 5) Gender equality; 6) Clean water and sanitation; 7) Affordable and clean energy; 8) Decent work and economic growth; 9) Industry, Innovation, and Infrastructure; 10) Reducing inequalities; 11) Sustainable cities and communities; 12) Responsible consumption and production; 13) Climate action; 14) Life below water; 15) Life on land; 16) Peace, justice and strong institutions; and 17) Partnerships for the goals.

reverse the impacts of climate destabilization, and offer financial assistance to affected developing countries, which President Obama signed upon inception.²²³ Nearly two years into these more recent developments and only five months into his term, the 45th president announced the U.S. would “cease all implementation from the non-binding Paris Accord” in June of 2017.²²⁴ One year later, the standing president also declared the U.S. would withdraw from the UN Human Rights Council (HRC).²²⁵ Since the U.S. ceasing participation in UNESCO’s *Paris Agreement* and the UNHRC, and with elected officials continuing to deny and circumvent climate destabilization, we have witnessed a continued deterioration of global ecological welfare: decreased regulations for MNCs, reversals of ecological and environmental policy protections, increases in unsustainable resource extraction, production, consumption, and disposal, rising global degradation, rapid disappearances of BCD, and the systemic and systematic outcome of

²²³ See: Meyer, 2019; Environment and Ecology, 2018; and UN, 2018.

²²⁴ With 197 signatories, 10 nations have yet to ratify the *Paris Agreement*, and the U.S. formally began its withdrawal from the deal, which will finally take hold on November 4, 2020 (UN, 2019).

Note that this decision was not unprecedented, as George W. Bush backed out of the *Kyoto Protocol* some 16 years prior (Meyer, 2019). As Hulme (2009) writes, while “[m]ost UN members subsequently started to refer to the [MDGs] and many used them as part of their policy and planning processes,” the U.S. remained an exception. Since power resided with a neoconservative president (Bush) and his neoconservative advisors that had little foreign policy experience and no involvement in the IDG or MDG process, they unabashedly stated that all of their decisions would only regard U.S. national interest, reinforcing this point by “forcefully... refusing to collaborate in international processes to curb climate change.”

For more, see: Meyer, 2019; Hersher, 2019; and Friedman, 2019.

²²⁵ See: Dwyer, 2018; Koran, 2018; and Foulkes, 2018.

environmental injustice that unevenly burdens BIPOC and those at the intersections of marginalization.²²⁶

The attendees of these landmark conventions produced historic content to be evolved and implemented for the years ahead. From the *Declaration of Belém*, *Earth Charter*, MDGs and Agenda 21, *Johannesburg Declaration on Sustainable Development*, SDGs and Agenda 2030, *Paris Agreement*, and countless UNESCO declarations and resolutions, this body of work has offered a foundation from which to further develop a sound, integrated, and inclusive sustainability, and a vital lens to critically analyze transnational practice. Nonetheless, these advances have not emerged without struggle. In fact, much remains unresolved with a number of reaffirmed, renewed, and appended goals that have provided minimal advances and gaps in outcomes, and which are exacerbated by divisions among and between corporations, government technocrats, grassroots theorists, activists, educators, and civil societies, including Local Peoples and BIPOC Communities.²²⁷

As witness via the Brundtland Report's definition of sustainability, these declarations, resolutions, and goals remain tied to hegemonic conceptions of the natural world, social systems,

²²⁶ In November, long-term drought conditions paired with strong winds in Australia contributed to massive bushfires spreading predominantly across Queensland and New South Wales, where a state of emergency was called (fires burned 1.65 hectares, “more than the state’s total in the previous 3 years combined”). The fires burned millions of hectares, hundreds of properties, has taken at least six lives, threatens biological diversity (plants, animals, and insects), and impacts environmental health (i.e. air quality) (Zialcita, 2019; Pickrell, 2019; Evershed, Ball, & Zhou, 2020). However, ties to the climate crisis remain contested, “with Prime Minister Scott Morrison’s Liberal government drawing some criticism for refusing to acknowledge any link to climate change” (Pickrell, 2019). By January 2020, the fires reached an all-time high, with unnumbered climate advocates, environmental activists, and well-known figures (i.e. media celebrities, political figures, etc.) globally linking the fires and the subsequent mass-scale losses to climate change. As of Jan. 2020, experts estimated one billion animals died in the brushfires (Samuel, 2020).

²²⁷ For instance, with Kofi Annan (2000) announcing the 2002 Rio+10 World Summit on Sustainable Development achieved \$235 million worth of public-private partnerships, the pro-business agenda of the W\$SD (as referenced by critics) produced a “central divide” between MNCs, governmental leaders, those on the ground (Kahn, 2010). As Kahn writes, “the summit proved disappointing in this and many other respects.”

See: Kahn, 2010; La Viña, Hoff and DeRose, 2003; and UN, 2002.

development, and economics, which perpetuate ecological destruction. Since efforts are simply integrated into existing structures and concepts of development rather than abandoning and ultimately altering the overarching systems, much has been thus been left to utopian conceptions and subsequent benevolent self-affirmations that continue to fall short in execution. Rather, the world leaders and representatives attending these conferences – theorizing, constructing, and endorsing these global-to-local environmental decisions – return to their respective countries and set in motion ecological advances via a global north mindset (the green agenda) without actually gathering, grasping, and/or adequately addressing the holistic needs and rights of BIPOC, local environments, and other-than-human inhabitants from the global south politic (the brown agenda).²²⁸ Furthermore, as Alán Pelaez Lopez (2019) articulated in an Instagram post, taking on a global south politic requires we “STOP EXCLUDING Black and Indigenous Geographies from the “Global South,” and instead “contextualize settler-colonialism and imperialism in the U.S.” by recognizing “there are also people from the “Global South” living in the “Global North,” i.e. East Oakland, Ferguson, the Bronx, and First Nation reservations are part of the global south.

While we should note worthwhile outcomes and advances in environmental and sustainability discourse, policy, and protection, the overarching international goals repeatedly miss the local mark, and fail BIPOC and those at the intersections of marginalization as the environment remains in crisis, all the while becoming international aims that are highly financed, backed, regulated, and celebrated. In turn, projects realized beyond these physical gatherings tend to uphold and preserve the oppressive status quo, and neglect to improve the lives of

²²⁸ Pertaining to the MDGs, see: Hulme (2009; 2010); on this topic per the lens of ecopedagogy, see: Kahn (2010).

Also, consider the similarities between Klein’s (2007) discussion of Milton Friedman’s Chicago school boys (appointed as economic heads in their home countries and who upon return enforced neoliberal policy) and UN leaders discussing issues from the top-down, returning to implement their global environmental and sustainability initiatives locally.

marginalized people per their own measurements. In contrast to those with first-world wealth, status, and power ideating at international conferences and merely discussing idealist actions for a greening world peace that tends to overwhelmingly benefit the status quo, the vanguards of the next wave of critical and conscious ecological theory and implementation necessarily must be BIPOC and those at the intersections of marginalization. Rather, BIPOC and those at the intersections, who have holistically, profoundly, and brilliantly developed nuanced, dynamic works, hold a wealth of firsthand experiential knowledge, ancestral wisdom, and critically analytical foresight that is requisite to heal, evolve, and thrive through and out of this anthropogenic era of global ecological crisis toward futurities of desire.

The research continually exhibits that detrimental environmental impacts impair the health, wellbeing, and livelihood of those marginalized, disenfranchised, dispossessed, and oppressed in the first-world and across the globe to a greater extent.²²⁹ This endures in large part because such news seldom reaches the mainstream nor stirs widespread concern. In the rare case the public is informed and moved to act, instead of engaging multi, inter, and transdisciplinary efforts that *front* and *work with* the people most adversely impacted to holistically shift environments and afford all the opportunity to live a dignified life, the implementation of resolutions repeatedly relocate power away from locals and to external agents that communicate and engage actions *on behalf of* or *altogether without* the very communities most directly encountering these attacks.²³⁰ As Temudo (2012) writes, “In the end, it is usually those who work for the development and conservation machine who win, not the ‘communities’ in all their complexity, and not the environment.” Thus, while efforts to engage environmentalism and

²²⁹ See: Chavis & Lee, 1987; Bryant & Mohai, 1992; Bullard, 1993; Guana, 1995; Bullard & Johnson, 2000; Gruenwald, 2004; Agyeman, Bullard, & Johnson, 2010; and *Democracy Now!*, 2017.

²³⁰ See: Temudo, 2012; Büscher, 2010; Ferguson, 2006; Oates, 1999; Bullard, 1993; and Bryant, & Mohai, 1992.

sustainability hold immense value, the work is deficient, if not unethical, without BIPOC at the margins leading the discourse, research, and application.²³¹

BIPOC and Intersectional Vanguard: Cultivating Frameworks of Desire

The implementation of international accords for sustainable development has influenced a wider agenda that links sustainability with EJ.²³² As discussed, sustainability efforts were largely the response to corporate and government-induced environmental degradation known to ultimately propel the declining state of our global eco-health, and centered corporate and governmental environmental responsibility with regards to cumulative anthropogenic environmental distress (Spindler, 2013).²³³ Likewise, the EJ movement emerged to address the uneven distribution of environmental risks that BIPOC specifically confront in the U.S., with the guiding framework incorporating the right of all individuals to be protected from environmental degradation and injustice.²³⁴

The integration of EJ within a framework of sustainability adheres to the larger mission of sustainable development and social inclusion by tackling issues of “political opportunity, mobilization, and action” at the local level, while simultaneously providing “a policy principle, that no public action will disproportionately disadvantage any particular social group” at the governmental level. The foundations of both traditions correspond on various levels, have proliferated, and are more widely endorsed at present. However, “governments at the local, regional, national, and international level” need to learn from “progressive NGOs, academics,

²³¹ See: Agyeman, 2017; 2013; 2004; Agyeman, Bullard, & Evans, 2002.

²³² See: Agyeman & Evans, 2004; and Cutter, 1995.

²³³ The Environmental Justice Paradigm (EJP) was built and evolved from its “antecedent paradigms or discourses,” and each “departs significantly from its predecessor” (Agyeman et al., 2016).

²³⁴ See: Taylor, 2014; Agyeman, Bullard, & Evans, 2002; and Bullard, 2001.

and local community organizations worldwide,” and “embed the central principles and practical approaches of [EJ] within emerging sustainable development policy” (Agyeman, Bullard & Evans, 2003). And local BIPOC-led actions and actors, which enlivened the movement from the onset, remain requisite for actualization and advancement of justice-centered sustainability efforts pressing forward.

Crucially, EJ is the first environmental discourse and movement constructed by BIPOC, which redefines traditional environmentalism around major concepts of “autonomy, self-determination, access to resources, fairness and justice, and civil and human rights,” all of which had been absent from mainstream (white, male, wealthy) environmental discourses.”²³⁵ The movement from inception has been grounded in “pluralist...concepts, foci, strategies, and actions,” which draws a wide range of constituents. A fundamental aspect of the EJ paradigm is thus its insistence on fluid, integrated, multiperspectival organizing beyond hierarchies and standardization (Agyeman et al., 2016).

Both the challenges to and the natural progression of EJ frameworks, namely “internal epistemic, theoretical, and methodological pluralism,” catalyzed the expansion of the field and its evolutions toward JS (Ibid). For example, early EJ agendas adopted a public health model of prevention (elimination of threat prior to harm) as a preferred strategy (Bullard, 2001). These initial EJ efforts fostered preventative measures to address the root cause of ecological issues in order to remove risks, as opposed to traditional environmentalism that simply responded to the symptoms and centered risk-redistribution via diagnostic models (Guana, 1995).²³⁶ As a “nexus” between EJ and sustainability, recent JS efforts extend beyond reactive measures toward

²³⁵ Agyeman et al. (2016) offer this analysis, pulling from Taylor’s (2000) historical and evolutionary narrative of the Environmental Justice Paradigm (EJP).

²³⁶ See also: Agyeman, Bullard, & Evans, 2002; Bullard, 2001; Middleton & O’Keefe, 2001; and Faber, 1998.

proactive measures that assure environmental benefits via “policy and planning of desirable communities, e.g. sustainable communities, with adequate green spaces and play spaces” (Agyeman et al, 2016; Taylor, 2014). In this sense, JS suspend what Tuck (2009) frames as “damage-centered research,” which are typically deficit-oriented and display “one-dimensional” representations of marginalized communities as “depleted, ruined, and hopeless.” Instead, JS foster Tuck’s concept of “desire-based” methods, which recognize BIPOC “sovereignty as a core element of...being and meaning making,” and that “reformulate the ways research is framed and conducted and...reimagine how findings might be used by, for, and with communities (Ibid).²³⁷ Moreover, JS provide frameworks for critical engagement, overcome the limitations of a singular paradigm, and advance a comprehensive convergence of environmental sustainability that bridge broader issues of equity, justice, governance, and democracy in both theory and practice (Agyeman et al., 2016).²³⁸

Substantial local initiatives for sustainability and EJ in the U.S. have included community empowerment, waste reduction, ecotaxes for pollution and excessive resource use, elimination of agriculture and energy subsidies, local trading exchanges such as time banking, affordable housing, recycling and renewable energy, efficient transportation systems with increased access, and community-supported agriculture schemes such as community gardens (Agyeman, Bullard, & Evans, 2002). Nevertheless, we have yet to witness these practices become standard policy. Thus far, the “measurements place a priority on economic sustainability and livability standards above all other factors,” leaving out issues of social needs, equity, and welfare as associated with

²³⁷ Tuck (2009) calls for a moratorium on damage-centered research in order to forward BIPOC, intersectional, and marginalized people’s survivance, and to deepen sovereignty, relaying this is only possible through frameworks of desire that: 1) Re-vision theories of change; 2) Establish tribal and community human research ethics guidelines; and 3) Create mutually beneficial roles for academic researchers in community research.

²³⁸ See: Agyeman , Bullard, & Evans, 2003; and Agyeman et al., 2016.

the environmental limits of supporting ecosystems. It remains rare for issues of environmental justice to be recognized as a facet of sustainability. And in the exceptional cases BIPOC rights are acknowledged, EJ typically remains a peripheral concern rather than major focus, and especially centers urban hubs (Agyeman & Evans, 2004).

Outside of the U.S., sustainability and EJ campaigns have emphasized “human rights, slavery, genocide, deforestation, pollution and toxics, biopiracy/bioprospecting, globalization, land appropriation, immigrant rights, military testing, natural resource extraction, waste disposal, climate change, energy production, and free trade agreements” (Agyemen et. al, 2016). Outside of the nation, sustainability and EJ in particular have been contested and problematic concepts due to wide gaps in perception, although they have since moved “from the margins to the mainstream in British NGO and policy circles.” For instance, the EJ movement that began in the U.S. in the late 70s only recently gained appeal in the UK at the start of the century. Activists, NGOs, concerned locals, and researchers in the UK are now developing campaigns and studies that unearth the layered realities of environmental injustices and the disproportionate impact on marginalized groups. Although this is a necessary – if only minor – advance in a positive direction, a large portion of the EJ issues emphasized pertain to disparities in socioeconomic status while neglecting the layered impacts of race and ethnicity, sex and gender, religious affiliation, and/or intersectional marginalization in general (Agyeman & Evans, 2004).

As mentioned early in the chapter, global sustainability efforts include everything from mitigating climate destabilization and safeguarding natural resources, to establishing environmental policies and corporate reform, and developing environmental research, science, and technology.²³⁹ Intralocal sustainability efforts address concerns that arise between nations, as well as across the globe (Agyeman et al., 2016). Many such efforts are often praised as “just”

²³⁹ See page: 113 for complete list per: NCA, 2018; Baker, 2014; Edwards, 2005; and UNCHE, 1973.

even though these projects create new injustices by merely outsourcing and transferring problems “to another locale.” As we continue to develop JS projects we thus need to deeply and critically analyze the problems, resolutions, and project determinations associated with such issues as the “consumption and production of environmental inequalities,” e.g. “electronic waste, toxics, and other garbage; mineral, water, and natural resource extraction; manufacturing and occupational hazards; and greenhouse gas emissions” (Agyeman et al., 2016).

With concerted efforts well underway, crucial questions remain: what are we sustaining, what is actually improving, are these improvements sustainable, according to whose standards, and are we creating new issues elsewhere? When reviewing the 2015 MDG outcomes report, there are major inadequacies, loopholes, and limitations of global sustainability goals, approaches, and measurements thus far. And as the burgeoning body of sustainability work repeatedly reveals, the more affluent nationally and globally create the most environmental pollution and degradation, albeit “environmental problems are vested disproportionately on the poor” who simultaneously receive “limited environmental benefits” (Agyeman et al., 2016; Taylor, 2014).²⁴⁰ Furthermore, neoliberal economic policies in particular yield massive social and ecological consequences “in terms of higher pollution levels, greater resource exploitation, less protection for workers and massive social and cultural dislocation” (Agyeman, Bullard, & Evans, 2002). With little incentive to shift, MNC heads, governmental leaders, and benefactors incessantly and knowingly employ unsustainable practices that actuate the grave ecological outcomes in our current geological age known as the Anthropocene. The impact of neoliberal

²⁴⁰ Worldwide, those most impacted by climate destabilization and environmental hazards continue to be marginalized communities: poor [urban,] coastal, island, farming, and pastoral, as well as developing nations generally (Agyeman et al., 2016). As Lavelle & Coyle (1992) explained a quarter of a century ago, BIPOC who faced disproportionate environmental burden also received the least environmental and public health protection by the EPA in the U.S. compared to whites and those with greater wealth (Agyeman, Bullard, & Evans, 2010). This analysis is paralleled in contemporary studies, as Agyeman, Bullard, & Evans (2010) write: “globally and nationally, the poor are not the major polluters. Most environmental pollution and degradation are caused by the actions of those in the rich high-consumption nations; especially by the more affluent groups within those societies.”

globalization and impending climate destabilization are indeed centralizing sustainable development strategies across policy and practice, with momentum steadily building to ensure the inclusion of underrepresented voices. However, “rejection of the current blind pursuit of unqualified growth,” the requisite reconfiguration “of all the principles of industrialization, agricultural production, urbanization, etc.,” and the redistribution of power such actions necessitate have historically been met with hegemonic opposition.²⁴¹

Throughout history, major social and political change has rarely (if ever) involved ethical awakenings from those with political and economic power, and it remains unlikely that a moral epiphany will catalyze the necessary changes. As witness at the close of 2019, the UNs COP25 created a major stir after delegates exhausted two additional days and nights (40 extra hours) of negotiations regarding climate destabilization, especially pertaining to limiting rising global temperatures below the 1.5°C IPCC and Paris Accord recommendation. Although the EU and 177 companies at the climate conference pledged to slash carbon emissions to net-zero by 2050, many delegates left disappointed in outcomes and numerous urgent agendas are being deferred to next year’s COP26 in Glasgow, Scotland (McGrath, 2019; Larnaud, 2019). Only time will reveal if the climate crisis will be tackled and whether the SDGs and Agenda 2030 will supersede its MDG and Agenda 21 predecessors in achieving a wider and more complex set of global goals and declarations for sustainable development. How we measure progress is also worth noting

²⁴¹ As Agyeman & Evans (2004) write regarding the EU’s *White Paper*: “By implication, the proposals demand a degree of power transference both between levels of government (through the principles of proportionality and subsidiarity), and from government to civil society interest organizations.”

That said, we need to consider the implications of language when discussing rights. For instance, the Environmental Democracy Unit of the UK’s Department for Environment Food and Rural Affairs, which was established to facilitate the Aarhus Convention, is committed to environmental justice and “citizen” participation in decision making. What remains to be addressed are the individuals who are not granted citizenship, or opt out of citizenship in a system that has never afforded them dignified rights (regardless of their documentation status, and especially as associated with citizenship), i.e. BIPOC and those at the intersections of marginalization.

See: Nieto, 1997; and Agyeman & Evans, 2004.

because many of these efforts, such as those presented in the 2015 MDG report, display uneven progress for marginalized groups whose communities are continuously designated as “sacrifice zones” since they provide “paths of least resistance” (Bullard & Johnson, 2000; Taylor, 2014).

If we have learned anything from the past and the massive body of work sustainability advocates have generated since its genesis, many of the purported achievements via ongoing international, national, and local sustainability efforts are transient, unsustainable, and often present a green veneer and/or benevolent façade when business will continue as usual.²⁴² This is true in large part as sustainability still lingers as “an appendix to the old conceptual tenets of the predominant economic model, used at the level of discourse but incapable of stimulating a true practice of sustainability” (Nieto, 1997). EJ and JS advocates therefore advance that contemporary critical sustainability efforts must evolve beyond simply greening the planet toward justice-oriented efforts that converge “human rights and environmental security issues.” The broader conceptions and current evolutions of sustainability via JS thus overcome the limitations and pitfalls of former green-leaning agendas by centering brown agendas that focus on immediate issues of BIPOC justice, equity, rights, and dignity (Agyeman, Bullard, & Evans, 2002; Agyeman et al., 2016).²⁴³

Rather than “a return to the pre-modern technology stage [or] the stagnation of society,” JS cultivate mutual responsibility and respect for all that is alive as the “fundamental ethical imperative” for the preservation of our global ecology, and the only hope for departure from current global ecological crises toward thriving, holistic ecohealth and wellbeing (Nieto,

²⁴² Note that the UN continues to state uneven progress between wealthier and poorer people worldwide as written in the 2015 MDG outcomes report (UN, 2015b), as well as the difficulty in achieving poverty eradication, which was considered “the greatest global challenge” via the Johannesburg Declaration (UN, 2002).

²⁴³ See also: Khan 2014; Kahn, 2010; and Allen and You, 2002.

1997).²⁴⁴ JS thus call BIPOC and intersectional communities to create anew by reframing, reclaiming, and generating sustainability toward communities of desire, rather than transforming the existing interlocking systems of domination.²⁴⁵

For example, counter to the WWF's aforementioned colonial conservation projects that imposed various forms of violence on locals, the Maya Biosphere Reserve that covers a fifth of Guatemala has been protected over the last five years by placing control in the hands of locals (Rainforest Alliance, 2019).²⁴⁶ Likewise, Bolivia's first Indigenous president, Aymara Indigenous member and cocalero activist Evo Morales reduced the country's dependence on the World Bank and IMF, "transformed Bolivia, one of South America's poorest nations, into one of its most dynamic economies," redistributed wealth, brought infrastructure to poor communities, and lifted millions out of poverty during his 12-year tenure from 2006-2019 (Kurmanaev, 2019).²⁴⁷ And major cities around the world are engaging in policy initiatives to address waste, pollution, and energy efficiency to combat climate destabilization and reduce harmful ecological impacts. In the next decade, one of India's largest cities, Kolkata, plans to go electric starting with all ferries and 5,000 e-busses. With levels currently eight times higher than the safe-limit, the city plans to eliminate 800,000 tonnes of CO₂, and save \$98 million worth of bus fuel

²⁴⁴ Nieto (1997) sets out basic principles for holistic sustainability to include: integrative efforts; redefinition and assurance of equity, justice, and dignity; a paradigm shift that redefines humans relationships with nature beyond the current anthropocentric conceptions toward interconnected orientations; past, present and future considerations that do not damage ecological integrity and its regenerative capacity; redistribution of equity and dignity specifically pertaining to global wealth and opportunities, greater relations between nations; respect for nature and beings, with a focus on marginalized groups; dignity and sovereignty; and an indissoluble dialectic union between theory and practice that is always evolving and requires constant refinement, redefinition, and adaptation.

²⁴⁵ That being said, JS also calls for change at the political level, i.e. governments and policy change, as mentioned at the start of the section.

²⁴⁶ Note that the policy contract for this effort ends this year, and the following efforts have yet to be decided.

²⁴⁷ Morales resigned his fourth term as Bolivia's president in October of 2019 after a disputed election and weeks of nationwide unrest, and was replaced by Jeanine, Añez, a right-wing government that is supported by neoliberal capitalist forces throughout the world (Kurmanaev, 2019; 2019b)

annually (WEF, 2019a). Similarly, Amsterdam’s ambitious plan is to go electric or hydrogen-powered starting in 2020, enforcing every vehicle be electric (EV) by 2030 (Boffey, 2019).

As Agyeman, Bullard, & Evans (2002) maintain, justice-centered sustainabilities require a move away from our present market-driven, resource-intensive development paradigm that disproportionately harms, exploits, and threatens the wellbeing of BIPOC and those at the intersections of marginalization, depletes natural resources, and destroys the planet in the process. JS thus call for a paradigm shift in which the rights and dignity of BIPOC and those at the intersections of marginalization are prioritized before first-world pursuits. As Agyeman & Evans (2003) write:

True sustainability with a full regard to environmental justice would be best reached by advancing sustainability ideals toward hard/strong sustainability or ecocentric theories while highlighting environmental justice theories that incorporate intergenerational, intragenerational, international, and interspecies equity, and supporting economic reforms that value community economic development with redistributive values and policies.²⁴⁸

JS expand initial sustainability objectives by offering multidimensional, multilateral, transdisciplinary, transcultural, holistic ecological approaches that are fluid and requisite in order for our earth and inhabitants to not only survive, but to heal, grow, and thrive. Inclusive within such a far-reaching field of study and application should be BIPOC conceived, designed, and led efforts across spectrums that concern such topics as: BIPOC conservation and biodiversity methods; traditional healing and plant medicine; language reclamation and revitalization, renewable energy; sustainable food production, access, and consumption; urban and community-

²⁴⁸ Using Jacobs (1999) concept of Hard/Soft sustainability, Agyeman et al. (2016) write: “Hard or strong sustainability, which equates with ecocentrism, implies that renewable resources must not be used faster than they can regenerate, that is, that (critical) natural capital must not be spent—we must live off the income produced by the capital. Soft or weak sustainability, which equates with technocentrism, accepts that certain resources may be depleted as long as others can substitute for them over time. Natural capital can be used up as long as it is converted into manufactured capital of equal value. One problem with weak sustainability is the difficulty in assigning monetary value to natural materials and services. In addition, it does not take into account the fact that manufactured goods and services cannot replace all resources. Strong sustainability thus maintains that there are certain ecological functions or services the environment provides that cannot be replaced by technological fixes.”

supported agriculture; communal living; ecological architecture; space and place justice; alternative currency; globalization schemes; ecotaxes, “corporate reform, ecoliteracy, climate change, human rights... conflict resolution...and organic farming.”²⁴⁹

JS usher sustainability into the 21st century through its integrated and holistic understandings of our global welfare. Where JS traverse next is up to those who are fostering the current gaps (especially pertaining to those constrained to the margins) and assuring a more comprehensive and inclusive project in both application and theory. JS thus push the bounds of executing traditional sustainability aims, i.e. “what is to be sustained, by whom, for whom, and what [are] the most desirable means of achieving [these goals?]. Instead, JS critically augment this mission by addressing the underlying roots of global problems and asking vital questions: who, what, and where are the greatest threats in our current ecological crises (i.e. BIPOC and BCD); who and what are the largest culprits of environmental degradation and ecological injustice; how do we curb anthropogenic crises and mandate accountability; how do we redefine dignity and offer all the opportunity to live dignified lives per their own standards; how do we assure political, social, cultural, and economic inclusion of local actors’—namely affected communities –throughout the process of conceptualization and development; how do we guarantee adequate compensation for use of BIPOC biological resources and TEK; and how do we ethically engage epistemological and ontological shifts toward desire-based frameworks, discourses, and projects?²⁵⁰

²⁴⁹ See: Edwards, 2005; Agyeman, Bullard, & Evans, 2002; and Agyeman, 2013.

²⁵⁰ For instance, inclusion necessarily requires TEK, BIPOC, local, and intersectional voices in knowledge production regarding means of critical analysis, defining desirable means, dignity, and standards of measurement, and assuring adequate compensation for the aforementioned.

CHAPTER 5

TOWARD CRITICAL ECOPELOGOGIES OF LOVE

[It is urgent] that we assume the duty to fight for the most fundamental ethical principles such as respect for the life of human beings, the life of other animals, the life of birds, the life of rivers and forests. I do not believe in the love between women and men, among human beings, if we do not become capable of loving the world. Ecology gains fundamental importance at the end of this century. It must be present in any educational practice as a radical, critical or liberating character.²⁵¹

-Freire, 2000; 2004

The remnants of the industrial revolution generated a breadth of ecological discourse worldwide, which helped set in motion international conferences and accords, including the first Rio Earth Summit in 1992. Rising momentum around environmental themes in Latin America at that time in tandem with the summit itself inspired educators such as Freire to “cultivate an ecological dimension” to standing critical pedagogy frameworks (Kahn, 2010). The ecopedagogy movement thus originated from these initial conversations in Latin America, establishing ecopedagogy as a growing discipline of study within educational institutions and “as part of a planetary movement for social and educational change” via grassroots actions and worldwide initiatives such as the Earth Charter (Kellner in Kahn, 2010; Kahn, Ibid).²⁵²

As a standalone, Freire’s *Pedagogy of the Oppressed* (2000) became ubiquitous in academic circles and beyond, illuminating a theory of education as a practice of freedom via

²⁵¹ Kahn edits the language in Freire’s 2004 edition of *Pedagogy of Indignation*, stating poignantly: “In this sense it seems a regrettable contradiction to make a radical progressive discourse, a revolutionary discourse and to have a practice that negates life – the practices of polluting the oceans, the waters, the fields, the devastation of the forest, and those which threaten the animals and birds.”

It is also very important to emphasize how Freire (2004) closes this section with emphasis on many marginalized groups who were previously unnamed and/or understated in his former works: “By disrespecting the weak, deceiving the unsuspecting, offending life, exploiting others, discriminating against Indians, [B]lacks, women, I will not be helping my children to be serious, fair, and loving of life and of others...”

²⁵² The term *ecopedagogy* has been used by a number of individuals with various meanings. For a historical overview of the ecopedagogy movement, see Kahn’s *Critical Pedagogy, Ecoliteracy, & Planetary Crisis: The Ecopedagogy Movement* (2010); and Gadotti & Torres’s *Paulo Freire: Education for Development* (2009).

themes of dialectics, dialogical exchange, and critical conscientization. However, many of his renowned texts were primarily confined to human rights, especially in relation to class struggle.²⁵³ Nonetheless, before passing in 1997, Freire, his colleagues, and ecopedagogues alike began expanding critical pedagogy to further capture the complexities of our planet's ecological crises. Freire and his peers worked toward the development of ecopedagogy as a "life-affirming ecological praxis" via synthesis and convergence of various disciplines that centralized a critical politics of environmental and sustainability pedagogy and practice, collective accountability, counterhegemonic resistance, social justice, and liberation (Darder in Kahn, 2010; Kahn, Ibid).²⁵⁴ Ecopedagogy thus took root, with Freire suggesting that "today's emancipatory educational ventures must strive to combat [global] ecocrisis" (Kahn, 2010; 2008).²⁵⁵

As has been discussed throughout this work, traditional environmental and sustainability efforts within the academy "often ultimately derive, are centered in or are otherwise directed from relatively privileged institutional domains based in North America, Europe, or Australia"

²⁵³ Critique over Freire's politics of such issues as race, sex, and gender in *Pedagogy of the Oppressed*, including pushback from feminists in the 1970s, led to his acknowledgement and revisions of sexist language in his 1995 edition (Coben, 1998; McLaren & Leonard, 1993). However, as Coben (1998) writes, altering sexist language alone is insufficient, as Freire's analysis is "just too simple and indiscriminate to accommodate the multi-faceted and contradictory nature of differential power relationships in terms of gender, class or any other social category."

For more on Freire and race, see hooks in McLaren & Leonard's *Paulo Freire: A Critical Encounter* (1993).

²⁵⁴ While much of Freire's work focused on humanism, his final book before passing focused on ecology (Gadotti & Torres, 2009). Freire's widow, Ana Maria Freire posthumously published her late husband's last book, *Pedagogy of Indignation* (2000).

²⁵⁵ Note that both Gadotti and Gutierrez helped establish the Paulo Freire Institute (PFI): "The first [PFI] in São Paulo, Brazil, was created in 1991 by Moacir Gadotti, Carlos Alberto Torres, José Eustaquio Romão, Francisco Gutierrez and Walter García, with the contributions of Paulo Freire as 'patrono' and signatory of the organizational charter of the Institute in São Paulo. In the following years, a number of other PFIs were established, including the [PFIs] of Portugal, Spain, Italy, Argentina, India, South Africa, Taiwan and Korea (information), and PFI of the University of California at Los Angeles in the USA" (Gadotti & Torres, 2009).

As Gadotti & Torres (2009) write, only days prior to his passing, Freire was talking at the Paulo Freire Institute about ecopedagogy and "his love for the Earth, the animals, the plants." While Freire was unable to develop the work himself, a number of his colleagues and forthcoming influential ecopedagogues advanced the discipline, including Francisco Gutierrez, Cruz Prado, Moacir Gadotti, Carlos Alberto Torres, Leonardo Boff, and Richard Kahn.

i.e. the global north (Kahn, 2010). In contrast, the ecopedagogy movement, having been “conceived and situated in the global south,” has spent the last three decades coalescing with the global south, with its theoretical origins evolving “both directly out of Freire’s work, as well as indirectly through the Latin American networks for popular education [and liberation theology.]”²⁵⁶ The critical ecopedagogy movement at present continues to center the brown agenda per its global south roots, providing ecopedagogical “[focus and political action on the relationship between environmental degradation, and fundamental sociocultural, political and economic inequalities].” That said, the foundational northern contributions to the development of a critical ecopedagogy within the academy and across the broader activist community per Kahn (Ibid) are in its ability to:

- 1) Provide openings for the radicalization and proliferation of ecoliteracy programs both within schools and society.
- 2) Create liberatory opportunities for building alliances of praxis between scholars and the public (especially activists) on ecopedagogical interests.
- 3) Foment critical dialogue and self-reflective solidarity across the multitude of groups that make up the educational left during an extraordinary time of extremely dangerous planetary crisis.

Critical ecopedagogies as such are able, but not limited, to radicalize and advance ecoliteracy, foster alliances rooted in action, and generate critical dialogue and solidarity across the educational left. Moving beyond a single discipline, the integrated field of critical ecopedagogy analyzes the limitations and harms of traditional environmentalist preservations of nature (that generally dismiss the human) as well as the anthropocentrism and first-world narratives present in some critical pedagogy and justice frameworks (which often exclude other-than-human beings and various marginalized and intersectional communities). For instance, past

²⁵⁶ As cited in Kahn (2010) per popular education networks in Latin America, see: Gutierrez & Prado, 1999; Gadotti, 2009; 2000; and for more on liberation theology, see: Camara, 1995; Boff, 2008; 1997.

and present class struggle frequently fail to include the issue of marginalized identity such as race and ethnicity, gender identity, sexual orientation, religious affiliation, ability, and the intersections of such. To offer a specific example, Black Feminism was invigorated following the historical exclusion of Black women from the first and second-wave feminist movements led mostly by white middle-class women. As this trend continued, intersectional feminist issues emerged that articulated the layered assaults WOC faced based on the intersections of the marginalized identities they occupied, i.e. race, class, gender identity, sexual orientation, and ability.²⁵⁷ As Kahn (2016) so poignantly explains:

Through ecopedagogy, then, a scholarly political movement is further dedicated to the critique of dismantling of a matrix of globally exploitative systems and institutions that dehumanize society and dominate nature – via oppressions of class, race, gender, ability, species, and other forms of violence – with an understanding that there is a mutually conditioning relationship between the destruction of the land and the exploitation of peoples in mass.

With this framing in mind, ecopedagogy endeavors to synthesize human rights, environmentalism, and critical theories as a means to guard, cultivate, and sustain the holistic dignity of all life forms and habitats by fostering an “ecologically grounded epistemology” pedagogy, and practice (Darder in Kahn, 2010).²⁵⁸ In turn, the ecopedagogy movement bridges “the politics of the academy with forms of grassroots political organizing capable of achieving social and ecological transformation” (Kahn, 2010). As such, critical ecopedagogies persist as a necessary component in ecologically advancing “the reconstruction of education and society” (Kellner in Kahn, Ibid).

²⁵⁷ Thanks in great part to Crenshaw (1990), Intersectional Feminism has gained more visibility, especially since the election of the 45th president, providing a framework arguing against the impact of interlocking systems of domination on Black and Indigenous Women, and Women of Color (BIWOC), i.e. cultural patterns or layers of intersectional violence.

²⁵⁸ The move toward ecopedagogy is proposed as a necessary and evolving critical ecological paradigm shift that transcends and subverts dominant narratives, which Darder writes as an “ecologically grounded epistemology” (Kahn, 2010). See Macy (2013) for a similar concept of *eco-consciousness*.

Although today's critical ecopedagogy movement retains clear objectives, it remains fluid, multiperspectival, integrated, and collaborative. The critical ecopedagogy movement of our era does and must continue to nurture and develop theory and practice communally, across boundaries, within *and* beyond the academic arena, on the streets, through political, economic, and sociocultural landscapes, and in forthcoming liberatory places, spaces, and projects. As Kellner (Ibid) explains, by utilizing critical ecopedagogy we are thus able to “engage our current set of crises, as we develop pedagogies adequate to the challenges of the contemporary moment that can promote social transformation guided by concerns of sustainability and justice.”²⁵⁹ And Marcuse reminds us, the “education system is political already” (Kellner, 2004). Thus, while “a [Freirean] ecopedagogy also analyzes schools as practical sites for ideological struggle,” Illich (1970) and Esteva & Prakash (2008) similarly voice Marcuse's sentiments that education “[will remain powerless unless it moves beyond the classroom]” (Kellner, 2004).²⁶⁰ Although there are no exact pedagogical formulas due to the ever-evolving mutability of life, critical ecopedagogies must invariably cultivate the complexities of ethically tending to a shifting ecology in crisis, create time, space, and adequate compensation for the inclusion of BIPOC and marginalized knowledge systems and resources, elevate BIPOC and intersectional BIPOC-led theories and practices, and persistently develop enduring time, space, and place for integrated and inclusive critical ecopedagogical efforts.²⁶¹

²⁵⁹ See: Kellner in Kahn, 2010.

²⁶⁰ See Kahn (2010) for a deeper analysis of the need for Marcuse and Illich's concepts of education within ecopedagogy.

²⁶¹ See Kahn (2010) for more on the topic of cultivating an ecological dimension to standing frameworks.

BIPOC and Intersectional-led Critical Ecopedagogy

Greater inclusion of BIPOC and intersectional vanguards invariably assist in expanding ecopedagogy, offering vital critical theoretical analyses, frameworks, and research through the firsthand knowledge, expertise, and experiences of marginalized individuals and communities who are frequently unaccounted, removed, and silenced in the mainstream. That said, we must contextualize existing frameworks that justify, normalize, and guarantee the ongoing systemic state-sponsored violence that leads to the premature deaths of countless, innocent BIPOC and those at the intersections via major issues such as the school-to-prison pipeline and the prison-industrial complex. If ecopedagogy hopes to address the current ecological crises worldwide it necessarily requires confronting and dismantling the remnants of dominant sociocultural constructs, which reinforce and legitimize the essentialized racial hierarchy, support deficit thinking, perpetuate a total climate of BIPOC exclusion and negation both “physically and cognitively” in the U.S., and validate the quotidian gratuitous violence directed at and imposed on BIPOC and those at the intersections of marginalization (Yataco in Grande, 2015).²⁶²

It is thus requisite to both explore and incorporate the emancipatory critical research, theories, and practices constructed and introduced by BIPOC and those at the margins in order to “engage, extend, critique, speak back to, and intensify” critical ecopedagogical content and thereby unearth the intricacies of the ecological assaults produced and sustained by interlocking systems of domination (Grande, 2015). If the history of social agitation has taught us anything, it has always been individuals at the margins who face harm and injustice, who explicitly know our society’s greatest ills, and subsequently raise our collective consciousness across forums about

²⁶² With my limited scope and timeframe, this barely brushes the surface of the ways that the colonial, settler-colonial, and neocolonial projects of empire have utilized cultural constructs to justify the unjustifiable mistreatment and violence directed against marginalized peoples for the sake of solidifying wealth, status, and power – nevertheless, it needs to be noted, even in brief.

the injustices to which many were formerly oblivious.²⁶³ For instance, Patricia Hill Collins (1990) and Kimberlé Crenshaw (1990) initially conveyed how neither racism nor sexism independently provide sufficient analysis in addressing the overlapping systemic and systematic violence Black women specifically endure. As such, both Collins' seminal concept of the matrix of domination and Crenshaw's renowned research on intersectionality offer critical ecopedagogy with an analytical framework to ground and articulate how interlocking systems of domination generate layered assaults on those occupying multiple marginalized identities, and how to dismantle and overcome such as we build toward BIPOC futurities of desire.²⁶⁴

Ecopedagogy scholars have indeed developed monumental work that progress environmental and sustainability aims, with a steadfast grip on the global south politic. However, technological advances that provide the mass public access to previously marginalized conversations and issues locally, nationally, and globally, as well as the election and rule of the 45th president of the U.S. has ignited a breadth of riveting critical works by BIPOC and those at the intersections of marginalization worldwide. The development of these comprehensive contemporary critical theories and analyses at the turn of the millennium continuously unveil new dimensions and depths to global interconnections regarding the violent matrix of domination and subsequent threats of the status quo on the health, wellbeing, and lives of BIPOC, those at the intersections of marginalization, other-than-human beings, the natural environment, and the overall

²⁶³ As mentioned, Black Feminists educated us about the necessity of dismantling interlocking systems of domination that inflict patterns of intersectional violence to assure those at the margins remained marginalized.

²⁶⁴ As the women of the Combahee River Collective (1979) relayed in their 1974 statement: "If Black women were free, it would mean that everyone else would have to be free since our freedom would necessitate the destruction of all the systems of oppression. This address is evermore requisite today, paired with but not limited to the inclusion of those at intersections of multiple marginalized identities, e.g. race, ethnicity, nationality, documentation status, socioeconomic status, sexual orientation, gender identity, religious affiliation, ability, language, and age.

For example, consider that the average life expectancy of Trans WOC in the U.S. is 35 years, while their cisgender counterparts life expectancy is around 78 (Arheghan, 2018).

sustainability of life on earth. Likewise, these works articulate the complexities of BIPOC wholeness that afford us an opportunity to critically actualize dissident and coalition futurities grounded in the desired, collective visions of BIPOC and those at the intersections.

In pursuit of reconstructing “current human, social, and environmental relationships” (Antunes & Gadotti, 2005), ecopedagogues must thus integrate the cornerstones of existing scholarship with foundational and emerging analytical frameworks and corresponding efforts developed by BIPOC scholars and those at the intersections of marginalization, while considering that all approaches “have their own strengths and limitations, their optics and blindspots” (Kellner, 2011). However, BIPOC, and those identifying at the intersections have holistically, profoundly, and brilliantly developed nuanced, dynamic works. Their complex assessment, critique, and response to colonization and settler colonialism, the current neocolonial cultural context, and future imaginings built on historical sapience are derived from cumulative firsthand experiential knowledge, ancestral wisdom, and critically analytical foresight. It is thus requisite to the next stage of ecopedagogical development to center BIPOC an intersectional intellectuals and critical scholars, their exhaustive knowledge, and counterhegemonic narratives to the forefront of the scholarship, practice, and movement to critically expand a multiperspectival discourse, engage alternate entry points that tackle unresolved and often dismissed issues, and generate prospective modes of action in a world that is always becoming.

Therefore, alongside Freire, Marcuse, Illich, Esteva & Prakash, and Kahn, critical ecopedagogy necessarily must be inclusive of such works as Daniel Solórzano’s CRT tenets, which offer a dynamic, evolving framework to critique dominant ideology, serve social justice, and center, elevate, and validate the experiences of BIPOC (Solórzano & Yosso, 2002); Sandy Grande’s (2015) *Red Pedagogy*, which challenges dominant paradigms through fostering the

recovery, re-imagination, and reinvestment of Indigenous-led decolonization, coalition, and alter-Native ways of being; and Adrienne Maree Brown's (2017) *Emergent Strategy* that provides critical "plans of action, personal practices and collective organizing" for intentional BIPOC and intersectional futurity.

These brilliant individuals in mind, there are an infinite number of highly extraordinary, influential, and groundbreaking critical scholars occupying marginalized identities and research who are developing, expanding, and contributing to the growing body of scholarship, such as those mentioned throughout the dissertation, including Louisa Maffi (BCD), Julian Agyeman (JS), Robert Bullard (Environmental justice), Eve Tuck (Desire-based frameworks), Kimberlé Crenshaw (Intersectionality), Cristina Sharpe (Black visual and Black queer studies), and Teresa McCarty (Indigenous language revitalization and reclamation). Furthermore, a wide array of BIPOC and intersectional sociocultural critics, activists, and intellectuals are conducting indispensable, vigorous on-the-ground work such as extensive research, social media discourse, academic lectures, conference presentations, and community organizing include in no particular order: Gloria Anzaldúa (Chicana cultural, feminist and queer theory), Fred Moten & Stephano Harney (Undercommons, fugitivity, and Black radical imagination), Frank Wilderson (Afropessimism and Critical Race Studies), C. Riley Snorton (Black and transgender cultural theory), Sabrina Strings (Politics of Black female representation, fatphobia, and the politics of desire), Alán Pelaez Lopez (Unpacking anti-Blackness, Afro-Indigeneity, and queer and fugitive identity), Zahira Kelly-Cabrera (Unpacking anti-Blackness, Afro-Latinidad and the Afrodiaspora), Walela Nehanda (the medical-industrial complex and mental health, ongoing generational colonial violence, as well as community education, healing, and food distribution via Spit Justice); and Alok V. Menon (Gender non-conformity, transmisogyny, and gendered and

racialized aesthetics).²⁶⁵

As emerging scholars – especially BIPOC and those at the intersections – continue to construct the body of ecopedagogy, create ecoliteracy content, and collaboratively develop inter, multi, and transdisciplinary discourse, research, and projects with broad implications consistent with themes parallel to the aforementioned intellectuals’ foci and associated theories, the discipline will attain a more holistic reach in line with its own vision. In this manner, ecopedagogy can gain greater momentum by tending to the multitude of issues consistently confined to the periphery. Rather, BIPOC and intersectional-led critical ecopedagogy discourse, theory, and practice affords us an opportunity to better protect and centralize those silenced and marginalized; nurture BIPOC and intersectional knowledge systems, and political and pedagogical paradigm revisions; cultivate “synergies between scholarship and activism” (Grande, 2015); provide adequate compensation for shared knowledge, resources, and contributions; and foster the sustainability of our interconnected coexistence to afford all a dignified life.

The Prospects of Ecopedagogy in a Neoliberal Academic Industry

Only a decade ago, Christopher Hedges’ *Empire of Illusion* (2009) spoke to the industrialist and capitalist assault on education, where the university had transformed from an institution of higher learning into a marketplace to garner profits.²⁶⁶ Hedges discussed how major

²⁶⁵ I must add that this limited list is based on my own interpretations of facets of these scholars’ and critics’ work – many from whom I have attained a great deal of critical knowledge. However, by no means do the aforementioned define the entirety of their contributions to their respective work and beyond – in fact, they are only a small fraction – and what I mentioned in brief only brushes the surface of the exhaustive breadth of BIPOC and intersectional research, theory, and practice in existence (past, present, and forthcoming).

That said, I reached out to a few social media sociocultural critics and heard back from Zahira Kelly-Cabrera and Walela Nehanda to gather their own preference for the language in the above mentions of their work.

²⁶⁶ As Hedges (2009) wrote, 45 colleges and universities were listed on the NYSE and NASDAQ at the time.

corporations commercialize and monetize knowledge production, and emphasized “the potential ethical and social implications” of industrial investments in the academy (Culliton, 1982). For example, Hedges described how corporations such as Coca-Cola hold monopoly rights over goods and services at “elite universities” such as Berkeley. Likewise, BP retained access to Berkeley’s researchers and technological capacity, maintaining intellectual property rights with current joint projects *and* forthcoming scientific breakthroughs that can be used for profit (Hedges, 2009). While some contend this trend is part of the natural evolution of economy that adheres to the current era, others argue that these efforts excessively support the military-industrial-complex, the bio- medical, technological, and pharmaceutical industrial complex, and the academic-industrial-complex by and large, in turn overlooking intellectual acquisition in the name of vocational preparation and the continued legacy of a corporatized, mass consumer-driven capitalist society (Lee, 2003).

The disconnect remains between knowledge production and knowledge attainment only a decade later. Neoliberal education has indeed proliferated and has been reinvigorated by the 2016 U.S. presidential election, which further compounded legitimizing hegemonic discourse, research, and practice. Moreover, the schooling system in the global north barely brushes the surface of the problems surrounding our current planetary ecocrises, visible in the departure from content that underscores the inextricable links between biological, linguistic, and cultural diversity, the massive threats to such diversities, unsustainability as supported via imperial/colonial logic, and the disproportionate harm BIPOC and low-income communities face from environmental injustices. Rather, the neoliberal model of the academy as a space to expand industry is supported by adherents and benefactors who fail to address larger planetary issues and who are thus complicit in maintaining and exacerbating global anthropogenic devastations

including environmental injustices.

Ironically, there are major centers of intellectual and even political resistances within the institutional settings. As Grande (2015) writes, amid continued safeguarding of the status quo in the academy, there has simultaneously been a swell in intellectual critique, with “Treatises on empire, imperialism, settler, and other colonialisms [that] are no longer relegated to the margins of academic discourse and have become central to a variety of fields and disciplines.” To a large extent, this critical intellectual surge is the product of various groups having historically struggled against and amid systemic discrimination, inequity, and injustice, often utilizing the academy to create space for engaging critical dialogue, while advancing counterhegemonic discourse, theory, and practice. The iconic Berkeley protests of the 60s brought forth a wave of change from free speech to the integration of newly appointed Ethnic Studies departments nationwide. While counterhegemonic efforts constantly confront opposition, disciplines such as Ethnic Studies have become a mainstay of collegiate level education and are more consistently provided distinct departments that host experts who continually innovate and progress the scholarship. And although there are still massive systemic injustices, such as lack of critical pedagogy and Ethnic Studies departments and courses, lack of equity, diversity, and inclusion in student body and professoriate populations, and requisite hegemonic curricula, there are increasingly more movements advocating for mandates on disciplines such as Ethnic Studies (e.g. via statewide legislation, campus-wide strikes, and etc.).

The lack of ecopedagogical topics of interest and concern in the academy expose the historical recurrence of hegemonic maintenance of the status quo. This is especially apparent amid worldwide acknowledgments of planetary ecocrises such as “[mass extinctions, global climate change,]” and environmental injustices (Kahn, 2010). Addressing global anthropogenic

ecological stresses are now regularly included in international accords and academic agendas, thus broadening in scope. For instance, the UN's *Decade of Education for Sustainable Development* from 2004-2014 was developed to respond to our "severe global situation of poverty, violence, inequity, and the exhaustion of natural resources" (UNESCO, 2017b). Since this implementation by the UN, as well as the advance of the SDGs, a number of European countries including Denmark, Sweden, and Norway have launched countrywide environmental and sustainability programs across campuses and as part of the larger plans to secure "sustainable cities and communities" (Breiting & Wickenberg, 2010; Myklebust, 2019). As Myklebust (2019) writes, the University of Denmark has made the UNs SDGs the focal point of its work as a university, while a collection of 36 Swedish universities and colleges have co-created a climate framework toward individual climate strategies to meet the Paris Agreement's 1.5°C warming limit by 2030, and a joint venture by the University of Bergen is hosting the Bergen Summer Research School, with doctoral students addressing issues of policies for a sustainable future. Likewise, Italy's education minister, hoping to place the country at the "forefront of environmental education worldwide," said climate destabilization and sustainability pedagogy will soon be compulsory across every grade in Italian schools as of September 2020 (Horowitz, 2019; Mezzofiore, 2019).²⁶⁷

The standard curricula in the global north school system and especially stateside have mostly neglected compulsory environmental courses. Most of such content, if presented at all, is covered in specific environmental programs and/or classes that are typically elective, outside of

²⁶⁷ Similarly, a project in England that is already instilled in science and geography courses is dedicating about one hour a week per year to climate destabilization, while other subjects such as geography, math, and physics will discuss topics from the lens of sustainable development (Mezzofiore, 2019).

For a comprehensive ranking of the top 100 universities in 2019 focusing on climate action, see: The World University Rankings (TWUR, 2019): <https://www.timeshighereducation.com/student/best-universities/top-universities-climate-action>.

mandated learning, and/or simply part of supplemental content such as a guest lecture. Another issue that presents itself is that much of the environmental and ecological content is empirically-based and often focused on macro-level research, which often fails to address issues of environmental injustice/justice, abandon local problems and stray from discussing corporate and governmental culprits of our global ecocrises. Moreover, because schools fail to dedicate an entire course to these topics, students often lose the opportunity to garner skills to creatively confront complex planetary ecocrises (PLT, 2019).

Although governments, state representatives, the news media, NGOs, scholars, and activists are at the head of environmental, sustainability, ecological, and ecopedagogical conversations, select scholars are often only summoned for their expertise in public matters after governments and state representatives have decided the bounds for local, national, and international goals, i.e. when it is time to implement predetermined large-scale policy and projects. That said, we should assure those in positions of status and power have access to develop integrated ecological knowledge through basic, intermediate, and advanced ecopedagogy throughout their schooling career, and especially via tenure at tertiary institutions. By engaging the next generation of students in ecological education throughout their primary, secondary, and tertiary schooling, we will be better equipped to solve our complex planetary issues (PLT, 2019). This is especially important considering many college graduates end up in positions that afford them ecological influence beyond the academy via public health, policy, law, governmental projects, NGO efforts, urban architecture, design, and planning, housing, and local and global health.

Issues such as climate destabilization, environmental sustainability, and social justice are certainly growing topics of interest widely engaged nationwide by the news media and

governmental agendas, and increasingly present in the general public's everyday discussions. A growing number of schools in the U.S are including environmental content, as apparent in programs and projects conducted on college campuses. As an example of the broader phenomenon, UCLA claims over 400 faculty and 1,000 students across campus are engaged in collaborative and shared missions emphasizing environmental problems and sustainability concerns (UCLA, 2020). UCLA's Institute of Environment and Sustainability (IoES), a cross-campus research institute that analyses multidimensional environmental challenges, bridges natural science, social science, law, public policy, and humanities, and offers certificate programs in such topics as Leaders in Sustainability (LiS). The Center of Occupational and Environmental Health (COEH) via the Public Health, School of Nursing, and David Geffen School of Medicine is one of three in-state mandated (post-1978 legislation) centers of education, research, and service programs in occupation health, having expanded to address environmental health in 1990. The Emmett Institute is the nation's leading law school center focused on climate destabilization and the environment. And the Luskin Center for Innovation offers interdisciplinary research focusing on environmental sustainability, providing initiatives on advanced transportation, clean energy, climate action, and sustainable power, and also partners with civic leaders across federal, state, and local agencies, nonprofits, and business associations. Further, UCLA offers the Sustainability Committee and Office of Sustainability to actualize projects, technologies, and policies for campus goals, such as zero waste to landfill and increases in sustainable food by 2020, as well as carbon neutrality and portable water reductions by 2025 (Ibid).²⁶⁸ UCLA clearly provides opportunities for growth in various campus-wide centers and institutes that contribute to the overarching focus of critical ecopedagogy. However,

²⁶⁸ Note that the majority of this language regarding campus-specific engagement is pulled directly from the Environment and Sustainability webpage.

many of the aforementioned projects overlook issues of environmental injustice and efforts to address such, namely the disproportionate harm faced by BIPOC and intersectional people and communities.²⁶⁹

In the midst of a planet in ecocrisis, it is apparent that ecopedagogy and ecoliteracy are necessary; however, if and where either will be housed within the academy is still inconclusive. Though not yet institutionalized in the academic milieu, UCLA's Graduate School of Education and Information Studies (GSE&IS) and home to the Paulo Freire Institute (PFI) afford an indispensable opportunity for students and pedagogues to spearhead the study of critical ecopedagogy and further its aims. Those building upon Freire's classics would acquire a hub to obtain and grow his body of work, including his final ecopedagogical projects, as presented by Freirean scholars and via discourse with colleagues past and present.²⁷⁰ Individuals conducting scholarship that touch on various interconnected issues brought forth via critical ecopedagogy such as ecocide, environmental justice, and justice-centered sustainability can further develop integrated theories, research, scholarship, and practice alongside peers and mentors. Developing integrated literacies (i.e. ecoliteracies, technoliteracies, CRT literacies, critical media literacies, and etc.) would allow pedagogues to tackle vital ecological issues of the last few and forthcoming decades in a manner that caters to the needs of our contemporary millennial student body. As the tides turn toward greater synthesis of works, multi, inter, and transdisciplinary pedagogues interested in the various facets of critical ecopedagogy would be afforded collaborative entry from within and across their respective departments spanning but not limited

²⁶⁹ Critical ecopedagogy and ecoliteracy specifically remain mostly nonexistent in the academy. During my tenure at UCLA, neither ecopedagogy and/or ecoliteracy were mentioned in lectures, neither topics were offered individual courses, nor were the issues present in workshop series or guest lectures anywhere across campus – even within an education for sustainable development workshop series. That said, students and even professors engaged these topics on their own in various disciplines across campus, with a focus on BIPOC-centered research.

²⁷⁰ As mentioned, Dr. Carlos Alberto Torres partnered with colleagues to establish the PFI at UCLA, and is considered one of the principal biographers of Paulo Freire, hosting Freire courses in UCLA's GSE&IS.

to: Education, Information Studies, Environmental Studies, Ethnic Studies (African American Studies, American Indian Studies, Asian American Studies, Chicana and Chicano Studies, etc.), Architecture and Urban Design, Food Studies, History, Global Health, Political Science, Public Health, Public Policy, Law, Sociology, Urban Planning, and World Arts and Cultures. The shifting academic landscape will conceivably produce further collaborations and integrative projects with those who opt for education and knowledge apart from the public school system and can provide a critical lens outside of the academy.

If we take into account anthropogenic ecological crises, consider the growing global integration of ecological curricula, and revisit the history of the struggle to integrate departments such as Ethnic Studies, the international move toward ecopedagogical content is seemingly inevitable. Touted as one of the most prestigious universities across the nation and around the world, UCLA's GSE&IS and the PFI have a short window of opportunity to become one of the first academic institutions to be a central host and headquarter to the impending ecopedagogical discourse, theory, and practice. Failing to be leaders in forthcoming scholarship is certainly an opportunity squandered, especially considering the lineage of critical ecopedagogy scholars that UCLA's Graduate School of Education and Information Studies has thus far cultivated: Dr. Richard Kahn (SSCE, 2007), Dr. Greg Misciazek (SSCE, 2011), Daniel Dominguez (SSCE, Doctoral Candidate), as well as myself, Venoosheh Khaksar (SSCE, 2020).²⁷¹

As experts, pedagogues, graduate scholars, and concerned students, we need to utilize this crucial moment to develop ecopedagogy, particularly amid the present-day global ecological crises and subsequent academic interest to respond to these devastations. Moreover, as

²⁷¹ Dr. Richard Kahn is the foremost scholar on ecopedagogy, co-founder and editor of *Green Theory and Praxis: The Journal of Ecopedagogy*, is widely published on the topic, and has held a series of ecopedagogical lectures and courses including an Introduction to Ecoliteracy master's course at Antioch University in Los Angeles, where Kahn is core faculty in the Education Department.

impending climate disruptions and the fears surrounding unsustainability weigh on many, and with a growing international movement launching environmental and ecological educational programs, it is only a matter of time before countless schools actively participate as vanguards in critical ecopedagogy and ecoliteracy.²⁷² Numerous proponents of such curricula are already being lauded for their progressive efforts. And since we possess an ideal space and history to cater to the development of very necessary critical ecopedagogical scholarship, we retain an opportune occasion to be a part of the genesis of this work should we so chose to participate.²⁷³

Without current standard curricula mandating critical ecopedagogy and ecoliteracy content and courses, it begs a host of questions: how can we anticipate science, technology, policy, law, and/or state-sponsored programs to respond to the current set of ecological disasters without sufficient knowledge and support across educational networks, and namely when our institutions “are exclusively trained to sustain the corporate structure” (Hedges, 2009)? How do we expect our scholars, researchers, and pedagogues to advance their respective disciplines and contribute to a vital epistemologically grounded ecological shift when the vast majority of this knowledge is nonexistent or marginalized in the academy? How can we account for the lack of BIPOC and intersectional vanguards, and how does this major gap influence the scholarship, research, discourse, theory, and practice? Moreover, how does the exclusivity of those with access to lead the scholarship reinforce and perpetuate environmental injustice? How can we bring an inclusive group of BIPOC and intersectional scholars together to create complex and dynamic integrated, transdisciplinary, multiperspectival critical works that better inform policy,

²⁷² Note that this is far from a call for universalized content, as there is no panacea to our global ecocrises. However, we are behind the times as the academy’s introduction to ecopedagogy faces similar pushback as departments such as Ethnic Studies, which was and still often is deemed misplaced and unfit at the university. Ecopedagogy thus requires its own academic discipline, so that scholars can build a holistic and tenable body of work that can be cross-referenced and further developed.

²⁷³ A great example of such placement of ecopedagogy would be housing it as a sub-specialization within Social Sciences and Comparative Education (SSCE).

curricula, and programs on the local, national, and global scale? How do we foster safe spaces for this inclusive group of said scholars together to co-create transdisciplinary content able to contribute to society at-large and target issues that disproportionately harm BIPOC and those at the intersections of marginalization while affirming the lives of other-than-human beings and the natural environment? What methods are required to assure adequate funding for BIPOC and intersectional knowledge, intellectual property, time, energy, and resources, which strengthen the body of ecopedagogical works? How do we utilize BIPOC and intersectional-led ecopedagogy and ecoliteracy to advocate and actualize meeting human rights to a dignified life such as adequate food, shelter, clean drinking water, healthcare, institutional rights such as equitable educational access, ethical representation politically and culturally, including legislative accountability of individuals, entities, and institutions, as well as meeting needs such as “economic redistribution, cultural and linguistic [freedom], indigenous sovereignty...and a respect for all life”?²⁷⁴ Finally, how will the inclusion of BIPOC and intersectional revisions of ecopedagogy “engage, extend, critique, speak back to,...intensify” and contribute to catalyzing a larger decolonized critical ecopedagogy movement and practice guided by desire-based frameworks that challenge and dismantle current interlocking systems of domination and move toward a reinvestment in a recovered and reimagined justice-centered sustainable future?²⁷⁵

Cultivating Love as an Act of Freedom

Love is a word we are advised to stray from in educational institutions. Love, we are told, holds no space in the academy because of its dualistic ties to intimacy, romance, sensuality, feelings, and the body, as opposed to logic, intellect, rationale, thought, and the mind. In this

²⁷⁴ This phrasing is included in an early footnote and the Methods section, as quoted via Darder in Kahn, 2010.

²⁷⁵ Note that this language is pulled from Grande (2015), which I quote earlier in the chapter.

sense, the Cartesian dialectic characterizes love as irrational, capricious, unreliable, and outright inferior to reason. However, when we trace the etymology of the word *philosophy*, the Greek *philosophia* translates to “Philo” meaning “to love,” and “Sophia” meaning “wisdom.” Dating back to around c. 1300, the etymology of philosophy therefore translates to a “love of wisdom.” Moreover, Plato’s impact on philosophy and education traversed into spaces where people would congregate around this *love of wisdom*. About mid-15c, the *academy* emerged, the etymology of the word stemming from the Greek *akadēmeia*, which is often denoted as the public garden where Plato taught (Trelawny-Cassity, 2020).²⁷⁶ The entire academic landscape was thus built on love: from the desire and love of attainment of knowledge, to the establishment of the academic institution to pursue this love, and the conferring of doctorates of philosophy – the highest university degree granted.

Love clearly contains vast space in the academy, whether or not we opt to admit to, recognize, or honor such. Love is cultivated and materialized through the philosophical critique or questioning of knowledge that “always ends with its restoration” (Rancière, 1974). Nevertheless, in the neoliberal academic industrial model that commercializes and monetizes knowledge production, it can be argued that the ethical roots of love have been curbed. On a theoretical level, the capitalist motivation of manufacturing knowledge has altered foundational notions of an interconnected global vision that hooks (2000) refers to as a love ethic. Through vocational preparation via the corporate model, the banking concept of education deposits dominant ideologies to be regurgitated by students, with minimal room for critique and conscientization (Freire, 2010). The physical diploma and its institutional worth are attributed greater value than the breadth of knowledge exchanged and attained in the academy. The

²⁷⁶ The etymology of these words was defined via etymonline.com (2020), while the peer-reviewed academic Internet Encyclopedia of Philosophy (IEP) offers some background on Plato’s impact on philosophy and the academy (Trelawny-Cassity, 2020).

ultimate target is to pass the necessary courses, graduate, and pursue a career able to supply mass consumer-driven socioeconomic ends and desires.

While the current academic landscape may speak to the evolution of the postmodern era, the neoliberal hegemonic agenda has diminished the aspects of a love ethic necessary for the sustenance, health, and wellbeing of our interconnected planet. Stated differently, the status quo, reinforced and perpetuated through interlocking systems of domination, is ontologically and epistemologically anti-love and in turn anti-life, as witness via the massive global disappearances and threats to BCD, increases in climate destabilization and unsustainability, and the disproportionate injustices, violence, and mortality faced by BIPOC and those at the intersections of marginalization worldwide. Therefore, any hope for ecological healing, justice, restoration, and a thriving sustainability demands engaging ecologically grounded epistemological shifts toward deconstructed expressions of love, introduced in this work as CEL.

Fortunately, the academy is not entirely devoid of love. There are pockets of enriching dialogical exchange across campus, research and projects that enliven intellectual discourse and challenge hegemonic power such as fugitive planning in “the Undercommons” (Harney & Moten, 2013), and courses that continue to inspire deeper critical questioning, advance scholarship, and actualize emancipatory knowledge systems, politics, and practices toward “re-formations of the self and the world” (Sandoval, 2000). Even amid the multitude of dominant discourse that reinforce and perpetuate anti-life paradigms, we still witness the surge in critical thought Grande (2015) expressed, which can be defined as life-affirming praxis - as “decolonial love” per Sandoval (2000).²⁷⁷ That said, dismantling colonial constructs of love and instead revisiting, reimagining, and reframing love will allow us to move through the world via myriad

²⁷⁷ To clarify, while I include the term “decolonial love” per Sandoval above, I personally opt to stray from using decolonization as a metaphor in line with Tuck & Yang’s, *Decolonization is not a metaphor* (2012).

expressions of deconstructed, critical reformations of love, which are necessary for our interconnected planet to exist, persist, and prosper amid global anthropogenic ecocrises.

Various scholars, theorists, activists, revolutionaries, theologians, and pedagogues have relayed over the years that love is a verb – the “active power” in humans that unites us with one another and that can only be practiced in freedom (Fromm, 1956). The inimitable hooks (2000) reminds us that “all the great movements for social justice in our society have strongly emphasized a strong love ethic.” Likewise, one of Che Guevara’s most famous quotes from 1965 reinforces this sentiment: “At the risk of seeming ridiculous, let me say that the true revolutionary is guided by a great feeling of love. It is impossible to think of a genuine revolutionary lacking this quality... We must strive every day so that this love of living humanity will be transformed into actual deeds, into acts that serve as examples, as a moving force” (Guevara, 2002).” Dr. Cornel West (2011) is highly cited with his popular line, “Justice is what love looks like in public.” Martin Luther King Jr. often summoned love, suggesting in 1956 that “we need leaders not in love with money, but in love with justice. Not in love with publicity, but in love with humanity.”²⁷⁸ In his *Pilgrimage to Nonviolence* (1960), King wrote of the Greek word for love, explaining that “*Agape* is not a weak, passive love. It is love in action,” which “begins by loving others *for their sakes*.” And Nelson Maldonado-Torres (2007) writes about Franz Fanon’s call against French colonialism and anti-Black racism in *Black Skin, White Masks* (1970) as “a war against war oriented by ‘love’, understood here as the desire to restore ethics and to give it a proper place to trans-ontological and ontological differences.”²⁷⁹

²⁷⁸ See King Jr’s written works in Burns, Carson, Holloran, & Powell (1997).

²⁷⁹ As Maldonado-Torres (2007) writes, “This is important because, among other things, we can see now that when Fanon called for a war against colonialism, what he was doing was to politicize social relations which were already premised on war. Fanon was not only fighting against anti-black racism in Martinique, or French colonialism in Algeria. He was countering the force and legitimacy of a historical system (European modernity) which utilized racism and colonialism to naturalize the non-ethics of war. He was doing a war against war oriented by ‘love’,

Love has been foundational to numerous counterhegemonic movements spanning the length of time, various institutional ideologies, and unnumbered ethical systems. Yet, even in the vast use and application of the term, the “hermeneutics of love” remain enigmatic and often ambiguous (Sandoval, 2000). Critical frameworks of love are certainly useful to thus reconcile tensions as our radical collective of pedagogues, researchers, scholars, academics, activists, students, and concerned communities acknowledge and address anthropogenic ecological crises worldwide. That said, while guidelines help support our efforts, we should refrain from universalizing, essentializing, and maintaining fixed conceptions of love. Our world is complex and dynamic, so our theories and frameworks should articulate multidimensional nuances. And because we often have blinders to diverse marginalized issues due to our positionality, it is absolutely requisite to develop space to foster broader coalitions of critical leaders who are often relegated to the periphery in our reformation of “love as the practice of freedom” (hooks, 1994).

As mentioned in an early footnote, the concept of love as appearing in this dissertation differs fundamentally from popular romantic definitions of the term. As defined or developed in this work, love is an action shown to add valuable and critical dimensions to contemporary liberatory pedagogical theory and practice. As the focal point of this work, a deconstructed love is grounded in a number of theorists, activists, and scholar’s conceptualizations, specifically utilizing the frameworks and major theoretical foundations of Fromm’s *The Art of Loving* (1956), Sandoval’s *Methodology of the Oppressed* (2000), and Solórzano’s five tenets of CRT in Education (1997).²⁸⁰

understood here as the desire to restore ethics and to give it a proper place to trans-ontological and ontological differences.”

²⁸⁰ These five tenets “form the basic perspectives, research methods, and pedagogy.

To begin, Fromm (1956) offers a modest framework for the practice of love. As he writes:

Love is an activity, not a passive affect; it is a “standing in,” not a “falling for.” In the most general way, the active character of love can be described by stating that love is primarily *giving*, not receiving.

Beyond the element of giving, the active character of love becomes evident in the fact that it always implies certain basic elements, common to all forms of love.

Beyond the intangibles of love, Fromm offers four core elements of the active character of love as expanded upon below:

Care:

Love is the active concern for the life and the growth of that which we love...One loves that for which one labors, and one labors for that which one loves.

Responsibility:

To be “responsible” means to be able and ready to “respond”...[One] feels responsible for [their] fellow [humans], as [they feel] responsible for [themselves].

Respect:

Respect means the concern that the other person should grow and unfold as [they are]. Respect, thus, implies the absence of exploitation...If I love the other person, I feel one with him or her, but with [them] as [they are], not as I need [them] to be as an object for my use.

Knowledge:

There are many layers of knowledge; the knowledge which is an aspect of love is one which does not stay at the periphery, but penetrates to the core. It is possible only when I can transcend the concern for myself and see the other person in [their] own terms.

In the act of fusion I know you, I know myself, I know everybody – and I “know” nothing. I know in the only way knowledge of that which is alive is possible for [humans] – by experience of union – not by any knowledge our thought can give.

As Fromm explains, love is a verb, an act of giving – wherein “[lies the expression of our aliveness]” – that can only be practiced in freedom. To Fromm, love is ill-attained and adversely

practiced in our society since human values are determined by the market, and people are alienated from their humanity: “The *principle* underlying capitalistic society and the *principle* of love are incompatible.” Through “discipline, concentration, and patience,” Fromm suggests we master the theory and practice of love as “the answer to the problems of human existence.” Fromm’s theory of love, its four core elements of care, responsibility, respect, and knowledge, and guidelines to master its practice are foundational to the ethical core of CEL research, theory, and practice that build toward ontological and epistemological shifts centering BIPOC desire-based futurities.

The key to cultivating and practicing a love ethic within academic research development and scholarly efforts is assuring that marginalized groups are accounted for and represented, through our own voices, knowledge systems, and revisions that we define. As Sandoval (2000) writes, marginalized peoples who survive under the conditions of interlocking systems of domination and find ways to resist and survive out of the dominant culture:

[S]elf consciously navigate modes of dominant consciousness, learning to interrupt the ‘turnstile’ that alternately reveals history, as against the dominant forms of masquerade that history can take, ‘focusing on each separately’, applying a ‘formal method of reading’, cynically but also un-cynically, and not only with the hope of surviving, but with a desire to create a better world.

Sandoval’s framework stems from placing U.S. third world feminist theory in conversation with theorists of decolonization, postmodernism, and poststructuralism. Through a synthesis of various influential intellectuals, Sandoval offers ten forms and contents of the *Methodology of the Oppressed* for “Love in a Postmodern World” to include: (1) the principles of political love and desire; (2) love as a political apparatus; (3) the end of academic apartheid; (4) the bases for creating interdisciplinary knowledge; (5) radical *mestizaje*; (6) *différance*; (7) the grammatical position of subjugation; (8) the middle voice as the third voice; (9) techno-

science politics; and (10) decolonizing cyberspace. In turn, Sandoval suggests an integrated collaboration of research, theory, and practice toward a cosmopolitics for “dissident and coalition consciousness” that is effective in creating spaces for oppositional forms of consciousness able to intervene against “neocolonizing postmodernism.” Sandoval’s framework thus delivers CEL a “new, revised vocabulary” that interrupts dominant consciousness and presents possibilities of resistance through the theories and methodologies of BIPOC and intersectional communities.

Similarly, Solórzano provides a dynamic and evolving framework for CRT in education, challenging the “[very real consequences of the social constructions] of race on U.S. society at both the institutional (macro) and the individual (micro) levels” (Yosso & Solórzano, 2005). The framework offers a distinct approach to addressing “existing modes of scholarship in higher education [that] explicitly focus on how the social construct of race shapes university structures, practices, and discourses from the perspectives of those injured by and fighting against institutional racism” (Yosso, Smith, Ceja, & Solórzano, 2009). Solórzano’s five tenets of CRT in education are particularly important for ecopedagogical research, theory, and practice pressing forward:

1. *The intercentricity of race and racism.* CRT in education starts with the premise that race and racism are endemic to and permanent in U.S. society and that racism intersects with forms of subordination based on gender, class, sexuality, language, culture, immigrant status, phenotype, accent, and surname.²⁸¹
2. *The challenge to dominant ideology.* CRT challenges claims of objectivity, meritocracy, color blindness, race neutrality, and equal opportunity, asserting that these claims camouflage the self-interest, power, and privilege of dominant groups.

²⁸¹ For reference, the five tenets of CRT in education, including the descriptions following each tenet, are pulled directly from Yosso, Smith, Ceja, and Solórzano (2009). I opted not to include the long list of references for the sake of length, however, to see individual citations for these tenets refer to the 2009 article.

Note that italics added for emphasis.

3. *The commitment to social justice.* CRT's social and racial justice research agenda exposes the "interest convergence" of civil rights gains, such as access to higher education, and works toward the elimination of racism, sexism, and poverty as well as the empowerment of People of Color and other subordinated groups.
4. *The centrality of experiential knowledge.* CRT recognizes the experiential knowledge of People of Color as legitimate, appropriate, and critical to understanding, analyzing, and teaching about racial subordination. CRT explicitly listens to the lived experiences of People of Color through counter-storytelling methods such as family histories, parables, testimonios, dichos (proverbs), and chronicles.
5. *The interdisciplinary perspective.* CRT extends beyond disciplinary boundaries to analyze race and racism within both historical and contemporary contexts.

Necessary to a love ethic, the underlying basis of CRT in education extended through CEL thus identify the intersections of race and racism with other forms of subordination, challenge and dismantle dominant ideologies, expose interest convergence to commit and actualize social justice, centralize BIPOC and intersectional experiential knowledge through counter-narrative and practice, and critically engage multi, inter, and transdisciplinary perspectives spanning historical and contemporary contexts that analyze race and racism.

Biocultural Diversities and Just Sustainabilites as Critical Ecopedagogies of Love

With these theories and frameworks in mind, this dissertation presents a take on a much needed call to love, in research, theory, and practice. I advance this call to action as a returning to, and evolving through, with, and alongside the coalescence of traditional, current, and future ways of knowing, existing, and functioning through love via a multitude of expressions such as BCD and JS, and beyond traditional notions of romantic and intimate love. I extend BCD and JS as deconstructed expressions of love that exhibit the underpinnings of CEL within and beyond the classroom. Each respective discipline as well as the integration offers a robust body of work

that supports CEL as multiple expressions of love in action. Utilizing the frameworks of Fromm (1956), Sandoval (2000), and Solórzano (1997) as the bedrock of CEL is itself engaging love as an act of freedom.

In order to cultivate CEL, we must begin by critically dissecting how the dominant paradigms that exist primarily support a dignified life for those in positions of power at the expense and off the backs of marginalized people, which is especially detrimental to BIPOC and those at the intersections. This requires holding individuals at the helm of global ecological havoc accountable. However, we must also critically interrogate ourselves, which means we look through our benevolent intents, confront excuses and reasoning that forgive our impact due to our “good intentions,” and instead encounter and correct the ways we ourselves produce, reinforce, and perpetuate anti-life and anti-love paradigms, such as residing on stolen land. We thus need to reimagine our anthropocentric worldview to urgently actualize critically engaged efforts that critique, resist, and respond to our planetary ecocrises, and build toward the reclamation, restoration, and reformation of cosmic equilibrium. In doing so, we situate this dissertation in its critical attempts to holistically unearth the ways to responsibly foster harmonious orientations *with* our interconnected ecology from what was, already is, and what holds the potential to be restorative through a science, theory, pedagogy, and practice of multiple expressions of love in action.

Through deconstructed expressions of love beyond a limited scope, love is presented from a multitude of expressions such as: historical, scientific, and textual scholarship that reveal the state and necessity of our inextricably interconnected world via BCD; critical and informed ideological theories and frameworks implemented via practical JS projects that center BIPOC and intersectional communities; and holistically engaged multiperspectival, multi, inter, and

transdisciplinary critical ecological education centering a global south politic via CEL. Love as such is expressed through the scientific and theoretical work produced via BCD and the theoretical and practical application of JS, which parallel, contribute, and echo the work of CEL. The disciplines in conversation offer a robust body of work to support and reinforce CEL in theoretical, empirical, and applied terms. Rather, BCD and JS express the active quality of love via Fromm's concepts of care, responsibility, respect, and knowledge; parallel Sandoval's BIPOC and intersectional-centered dissident and coalition consciousness; and ground Solórzano's five tenets of CRT in education through scholarship that centers BIPOC experiences and knowledge systems that work toward social justice via counterhegemonic practice. Upon reading this work, CEL can thus be realized as that which is concerned with assuring the opportunity for a dignified life and protection of those relegated to the margins; cultivating BIPOC and intersectional community-centered, led, and produced research, theory, discourse, pedagogy, and practice; adequately compensating BIPOC and intersectional peoples for their intellectual property and resources; instituting life-affirming praxis via ecologically grounded epistemological shifts in support of the health and wellbeing of our inextricably interconnected planet and its inhabitants; tending to the sustenance and dignity of other-than-human beings; and assuring we commit to cultivating BCD, JS, and CEL efforts globally, nationally, and locally.²⁸²

Scholarship via BCD and JS are thus expressions of love that assist in extending the work of ecopedagogy through an engaged CEL practice. As BCD display, humans actively coexist with and interchangeably influence nature and other-than-human inhabitants. Likewise, JS offer holistic, desire-based frameworks that focus on environmental justice. Facilitating CEL through

²⁸² These are brief overviews of major topics discussed in the dissertation and do not cover the whole of our ecological planetary crises such as excess waste, overproduction of beef, food and water deserts, mass consumerism, overconsumption, human labor exploitation, land, water, air, and resource destruction, pollution, and depletion, and the interconnected relationships between the aforementioned (e.g. overconsumption and excess waste).

BCD and JS assert the urgency of developing and cultivating an ecologically conscious paradigm shift – a collective awakening – a moral ecology (Edwards, 2005; Macy, 2013). This means that the application – the praxis – the actualization, need be in direct relation to the ideological underpinnings of ecologically grounded epistemologies. Our planet’s interconnected BCD, the life of BIPOC and intersectional peoples, and our earth’s sustainability depend upon a holistic lens if we seek lasting change. As Agyeman, Bullard, & Evans (2010) remind us, it is unlikely sustainability will be secured if society fails to attain greater levels of social and economic equity within and between nations. Therefore, the ontological and epistemological shift necessarily requires centering equity, liberation, social justice, and dignity for all beings rather than a select few. As Caroline Merchant (1989) suggests:

An ecological transformation in the deepest sense entails changes in ecology, production, reproduction, and forms of consciousness...In the ecological model, humans are neither helpless victims nor arrogant dominators of nature, but active participants in the destiny of the webs of which they are a part.

Research and associated efforts are thus insufficient if the goals do not address long-term, inclusive, just solutions that assure all are afforded the opportunity to live a life in harmony, justice, and dignity. As the discipline continues to expand, we must foster and further develop integrative, inclusive BIPOC-led projects that promote a more holistic and justice-oriented sustainability with the capacity to respond to and reverse our planetary ecocrises. This also requires reviewing our own efforts and asking if our work is contributing to the dignity of all beings per their own standards, or if our actions assimilate and uphold the status quo, ultimately denying certain peoples their right to a dignified life?

To be clear, securing a dignified life means eclipsing attempts to simply overcome material scarcity. Rather, a dignified life is a striving for the ideal of a cosmic community, where interconnected and interdependent ways of life and knowing are recognized, honored, and

sustained to help maintain a holistically harmonious equilibrium where collective needs, rights, and economic and social justice are equitably available for all environments and beings, human or otherwise, globally. Moreover, a dignified life for all assures equity, social justice, sovereignty, and liberation for all human beings and other-than-human beings, who are deserving of a respectable life where needs are met – though even this explanation is still seemingly within the confines of the dominant system.²⁸³ As discussed in regards to human-persons then, dignity translates to the need to for all to be afforded basic universal human rights to life such as adequate food, shelter, clean drinking water, healthcare, institutional rights such as equitable educational access, ethical representation politically and culturally, including legislative accountability of individuals, entities, and institutions, as well as meeting needs such as “economic redistribution, cultural and linguistic [freedom], indigenous sovereignty...and a respect for all life” (Darder in Kahn, 2010). Yet, suggesting theories and actions toward cosmic coexistence is often viewed today as extreme and improbable, as childlike idealism, and/or simply too grand of a task. Nonetheless, a dignified life for all beings is the most basic right to existence and should be pursued at all expense on the communal level locally, nationally, and globally. Simply stated, these ideals are not utopian, but an overcoming of formerly accepted dysfunction through the return to a deconstructed love ethic required for sustaining our world.

Love is therefore a verb that affirms cosmic life in equilibrium. Love is opposed to any form of harm, violence, exploitation, dehumanization, subjugation, objectification, oppression, colonization, and anti-life paradigms in general. Moving through love is not simply “a way of believing *about* the world but with a condition of being *in* it...of being alive to the world,” which is in forever motion, constantly evolving, continually unfolding, and always becoming. Similar to Ingold’s (2006) conception of Animism, love “is the dynamic, transformative potential of the

²⁸³ See: Larrain, Leroy, & Nansen, 2003.

entire field of relations within which beings of all kinds...continually and reciprocally bring one another into existence.”²⁸⁴ Love is a series of events, exchanges, and “I-You” encounters (Buber, 1970). Love moves beyond attributing life to inanimate objects, by recognizing souls coexisting in mutual relations that are vividly shifting through a “world-in-formation” – a world, “forever on the verge of the actual” (Ingold, 2006). As asserted by Bird-David, “Against “I think, therefore I am” stand “I relate, therefore, I am” and “I know as I relate” (1999). Love is thus recognized through the dividual, dialogical coexistence in flux (Ingold, 1999; Morrison, 2013).

The truly ecological advance requires an ideological shift that mediates how we orient ourselves to our world; otherwise changes enacted only *displace* the root causes, and thus offer momentary relief, resulting in inevitable forthcoming problems that will necessitate yet another temporary quick-fix solution. By converging at the intersections of BCD, JS, and CEL, it is apparent that holistic, transdisciplinary, integrated ecopedagogies are needed because the goals of each discipline often forget our interconnected relationships by not engaging in a dialogical exchange with one another. Fortunately, there is abundant knowledge available via a wide range of diversified scholarship that offers an opportunity to develop a comprehensive picture of our earth’s ecology, rather than just tending to the natural environment, or simply catering to the needs of the first-world. From differing approaches such as qualitative, quantitative, theoretical, and historical comparatives, to an infinite number of disciplines, there are limitless resources that help articulate the interconnectedness of our world through a transdisciplinary vantage point.

CEL thus require constant development and nurturing throughout communities and schools: from pedagogues, students, and curriculum, to parents, businesses, and community efforts. As our world continues to evolve and technology becomes more accessible globally,

²⁸⁴ While Ingold (2006) is defining Animism here, this description fits the critical concept of love offered in this work.

people from all regions of the earth are forced to recognize their relations to one another. With globalization displaying one form of our dependency on resources across our world, the notion of interconnectedness is expanding as we become aware of events occurring halfway across the planet impacting our way of existence stateside. A more recent instance we witnessed our interrelatedness was following the 9.0 magnitude earthquake that hit Japan in 2011 (the fifth largest in recorded history) and the subsequent tsunami that erupted in a nuclear disaster, scattering radioactive contamination at the Fukushima power plant site and extending to the North Pacific shores. Five years post-disaster, radionuclides were discovered to still be present in the air and radioactive deposits were found contaminating both the coastal marine environment and the organisms living close to the seabeds (*Democracy Now!* 2011; Pacchioli, 2013; IRSN, 2016).²⁸⁵

When reflecting on our global connections we begin to realize that indeed, we are one planet of beings coexisting. Rather, our movement impacts “others,” and the actions of “others” are directly related to our way of life. The onus is thus grounded on a mutual responsibility that works toward aims rooted in deconstructed, critical love in pursuit of a cosmic community. In the Buberian sense, we live far too much in the *I-It* world, and must seek harmonious balance by encountering the *I-You* world more frequently and fully (Buber, 1970).²⁸⁶

Therefore, to address the gaps in the literature, a holistic picture of the interconnectedness and interdependency of *all beings* must be critically analyzed through such disciplines as BCD, JS, and CEL. If for no other reason than tending to the sustainability of our existence on the

²⁸⁵ I note in the Afterword the ways in which the global Coronavirus, i.e. the COVID-19 pandemic offers extremely crucial insight into the intricacy and implications of our interconnectivity.

²⁸⁶ Martin Buber’s (1970) classic text, *I and Thou* highlights ideations around dividual identity in an inextricably interrelated cosmos. The text displays how we currently rely too heavily on disconnected relations where living beings are regarded as objects to be experienced in an *I-It* world, in opposition to the individual understanding and seeing of the self in relation, and further, the recognition of self only through reciprocal *I-You* encounters that acknowledge the other as oneself.

planet, it is vital to alter our way of life and how we interact with our universe. And we are able to learn from our cosmic community to realize that interconnectivity in all realms already exists and is needed for planetary health and wellbeing. Still, we must extend the ecological perspective beyond dominant western narratives to transcend the notion of addressing environmental concerns of plants, air, and animals, which forgets humans, *or* the anthropocentric concerns of simply caring for human population while losing sight of our connection to the earth – although, it should be noted that both are in dire need of immediate attention and have grave gaps, such as which humans are considered worthy of dignified lives. We should instead include and integrate a critical multitude of theories, knowledge systems, methods, approaches, pedagogies, and practices to provide the most inclusive picture possible, so that we truly can begin to offer all beings the opportunity to live a dignified life beyond rhetoric.

If our goal is working toward sustaining dignity for all beings and our planet, we need to uproot, discard, reimagine, and recreate the hegemonic narratives in place and instead display multiple truths that transform the status quo toward rights, dignity, liberation, social justice, and harmonious coexistence – toward love. As indicated previously, I advance a far more sophisticated concept than typically encountered in popular culture and even in much scholarly discourse. But love is presented in this work as a deeper proposal for ecopedagogy that must be explored as a serious intellectual response to the complex political, economic, cultural, social, and environmental problems elaborated throughout this text.

To restate, it is imperative to gather the many critical marginalized voices and knowledge systems, so that the ecological crises are solved communally. Moreover, if issues are only solved on a political or social level without regarding BIPOC and intersectional theory, ideology, or knowledge systems – if our foundational knowledge systems are not reformulated – then the

changes we will witness will be fleeting and other issues will undoubtedly arise. Rather, without a paradigm shift toward deconstructed love, our movement and how we orient ourselves to, through, and with the world will remain stagnant.

Theory cannot be forgotten in our hope for a better tomorrow, nor can praxis be simply theorized. As Marx proclaimed in his *Theses on Feuerbach*, “Philosophers have hitherto only interpreted the world in various ways; the point is to change it” (1845). Until we elevate the intersections of BIPOC and intersectional knowledge systems and protect, uphold, and compensate these complex critical contributions throughout time, change will be subtle. All can occur simultaneously: we can deconstruct the complexities of interlocking systems of domination, dialogue about how to realize to a cosmic coexistence that fosters justice-oriented sustainabilities and cultivates a thriving BCD, and dismantle the oppressive status quo to reformulate a new world that assures all a life of dignity.

Although this burgeoning discipline faces resistance due to its politically critical stance and often attributed utopian idealism, ecopedagogy engages us as multifaceted individuals living in a dynamic world that is ever-evolving (hooks, 1994). As hooks states, “Engaged pedagogy is a teaching strategy that aims to restore [persons’] will to think, and their will to be fully self-actualized” (hooks, 2010). And as ecopedagogues interested in social justice, liberation, and transformation, it is increasingly important for us to implement engaged critical pedagogy in our methods of facilitating dialogue and education.

Yet, as counterhegemonic as critical pedagogy and subversive education can be, it is extremely important to move beyond the realm of discourse alone toward actively transforming our current situation while also noting that anything can be refashioned by hegemonic systems to reinstate and reinforce the status quo (hooks, 2010; Aronowitz, 2008). It is vital to not only *speak*

of radical educators who suggest creative and dialogical approaches to “education as a practice of freedom,” but to *forefront BIPOC and intersectional vanguards* leading us toward reimagining and recreating new forms of liberation, justice, dignity, and life – even if that means we begin by engaging within the current structure – but more appropriately, dismantling it altogether (hooks, 2010).

Review of Tuck & Yang’s (2012) *Decolonization is not a metaphor*, and Harney & Moten (2013) *The Undercommons: Fugitive Planning & Black Study* aid in countering the notion that current models of reform are insufficient. As Queen Mother Audley Moore (1973) articulated:

We began to talk about wanting to be first class citizens. We didn’t want to be second class citizens. You would have sworn that second class was in the Constitution. Also, that citizens have to fight for rights. Imagine a citizen having to fight for civil rights! The very thought of it is repulsive. And I resent it and I reject this citizenship that was imposed on me.

Indeed, the aforementioned authors are able to offer a BIPOC and/or intersectional counternarrative, proposing that an ethics of love requires dissidence and subversion that actually dismantle interlocking systems of domination in the reformulation of a new world. In this sense, a love ethic requires engaging decolonization beyond the metaphor per Tuck & Yang (2012) – a “decolonization [that] is not accountable to settlers, or settler futurity,” but a “[d]ecolonization [that is] accountable to [BIPOC] sovereignty and futurity.”²⁸⁷ Using UCLA as an example, the university sits on Tongva land, relegating the traditional land caretakers to the margins in every sense. We need to thus grasp the complexities of theorizing about colonization, about anti-life paradigms, and our role as individuals living, working, breathing, drinking, and surviving off of and from this land that BIPOC cultivated. To be direct, the act of decolonization is not a

²⁸⁷ Note that “Decolonization brings about the repatriation of Indigenous land and life; it is not a metaphor for other things we want to do to improve our societies and schools” (Tuck & Yang, 2002).

transformation of society, schools, or scholarship. Decolonization is explicitly the repatriation of Indigenous land and life.²⁸⁸ Likewise, as Harney & Moten (2013) write, there is no escape in a system that is inherently built against Black futurity; there is only subversion and reformation. Thus, as practicing ecopedagogues, we must confront the profound dynamics of existing on stolen land, listen, uphold, and forefront BIPOC and intersectional intellectuals who experientially know the disproportionate harm faced by their communities, and self-reflect on our own roles in both the academy and society-at-large.

As many environmental critics suggest, life will continue on this planet; however, humans may not survive at the rate we are destroying the possibility of our sustenance. This sentiment is surely anthropocentric, and its response is increasingly rooted in fear of imminent death versus a love of sustaining that which is alive. While I propose a call to love as a necessary ecological ontological and epistemological shift, I also understand that anthropocentrism may be the only drive at this stage motivating MNCs, governmental heads, state representatives, policymakers, and those in positions of power toward some form of healing and tending to our interconnected planet. As Christopher Key articulates (2012):

[I]n today's society, money is power and those with the power seem to believe that the rest of the world exists to service them. The Earth and its resources exist solely to further their aims. The nations of the world exist solely to give them new markets to expand into. The people around them exist solely to provide them with the labor that advances their control of the world. We see environmental degradation, we see violent imperialism, we see discrimination and oppression, all done to both exercise the power of those at the top and to preserve it, through economic domination, political power and sheer brute force.

Our global ecology thus deserves mutual reciprocity – our interconnected world is deserving of a love able to offer care, responsibility, respect, and knowledge “In return for the privilege of breath” (Kimmerer, 2013). That being said, through the steady ascension of

²⁸⁸ That said, while decolonization is not necessarily politically realistic considering the dominant power relationships in the early 21st century, it should be fought for at all cost.

international sustainability concerns pertaining to the state of global environmental health and wellbeing, ecopedagogy and ecoliteracy has continued to rapidly evolve, whether or not its practice is understood as an extension of the discipline. Access to and through the World Wide Web, cyber communication, and advances in science, technology, education, and literacy that focus on and circulate such issues through media networks around our globe have catapulted a number of eco-efforts that offer an opportunity to nurture “community cultural wealth” (Yosso, 2005). Today, we witness the advent of various communal efforts to both combat ecological concerns and tend to the growing gap between those holding traditional interpretations of cultural capital, i.e. wealth/income, individuals in the wide-ranged middle-class, and people at the lowest rungs on the socioeconomic ladder.²⁸⁹ We now see a growing do-it-yourself (DIY) culture where the mega-corporation is increasingly eliminated: small-space urban gardening, locally-based cooperatives and farmers markets, Pinterest DIY projects, handcrafted and secondhand sales via Etsy, Airbnb home and room rentals, open-access networks for free and autonomous knowledge exchange, alternative time-based currency via time-banking, communal living, and ridesharing via such companies as Uber and Lyft.²⁹⁰

Corporate and governmental eco-projects often remain deeply tied to monetary gains and policy submission, using science, technology, and power in the service of capital rather than a desire to reduce unsustainable and harmful practice.²⁹¹ However, a number of grassroots

²⁸⁹ Note that Yosso (2005) offers a dynamic “community cultural wealth” model that departs from the deficit view of cultural capital placed on Communities of Color, i.e. “cultural knowledge, skills, abilities and contacts possessed by socially marginalized groups that often go unrecognized and unacknowledged.” Yosso describes these forms of capital to include “aspirational, navigational, social, linguistic, familial and resistant capital.”

²⁹⁰ As we see with ridesharing, however, some of these options are simply creating new spaces for corporate giants. Rather, what started out as an opportunity for many is frequently tainted by capitalist greed, where the individual (i.e. the driver in the case of ridesharing) often takes on greater burden than the company.

²⁹¹ This is discussed throughout the dissertation in relation to the ways interlocking systems of domination generate ecological harm in the Anthropocene. Rather, first-world oppressive market-driven endeavors drive and elevate

endeavors are utilizing and developing new trends in ecologically sound science and technology. Myriad examples of these smaller-scale, local, and/or community efforts include actions to combat ecological disasters and the people most impacted by such eco-crises: climate stabilization efforts (re-greening spaces, biomimicry, water nets and pits, and drought-resistant landscaping), water pollution (garbage capture devices, trash nets, biodegradable packaging, and zero-waste products), and urban agriculture (vertical indoor farming, aquaponics and hydroponics, farmers markets, co-opportunity markets, and farm to table restaurants).

In the last decade in the U.S., we have witnessed the growth of an emboldened, socially-conscious, and well-informed youth concerned about the nation and the state of the world, who are speaking out and helping incite the movement: Mari Copeny (Little Miss Flint), the pre-teen water crisis activist who has been advocating for years for lead-free, non-toxic water for Flint, MI residents; Isra Hirsi, the teen organizer (and daughter of Ilan Omar) who helped launch the nation's Youth Climate Strike and emphasizes the disproportionate impact of climate destabilization on communities of color; and Autumn Peltier, the Wiikwemkoong First Nation teen activist and Chief Water Commissioner for the Anishinabek Nation who has been organizing since she was eight for clean drinking water as a pressing human rights issue (Nagle, 2019). Although these astute, resilient, and inspiring young activists (and many other unnamed) fight for our futures, it should not be their duty to struggle for global ecological wellbeing, but should be the responsibility of the CEOs, government technocrats, supporters, and benefactors who are aggravating these issues and who need to be held accountable. Yet, aside from this unlikely accountability, Tuck (2009) reminds us that BIPOC are already critically actualizing the necessary dissident and coalition futurities grounded in desired, collective visions.

profits, displacing the immediate and long-term health of the earth and inhabitants, marginalized people more than others, and inevitably forego holistic eco-health and wellbeing.

Without active participation, dialogue and theory alone will not solve larger societal issues. Nonetheless, it should be noted that action alone is not the key either – meaning, far too often due to interest convergence, policy change does not solve the deeper issues of “isms” that exist, and oftentimes new or amended laws and reform do not alter the situation at the core but are allowed to simply displace the problem that will resurface elsewhere. While it is often suggested that collective action offers only temporary solutions and that our fate is beyond human intervention, the strength of the collective throughout history continues to be its ability to instigate transformation and shift paradigms, with the potential of engendering change toward assuring all a dignified life (Aronowitz 2008). And so, “We have to create a civil society in which the concept of the creativity of intellectual ideas and the possibility of social justice have to be put on the front burner” (Aronowitz 2008), through a historical process that synthesizes theory with practice.

To close, I offer Kimmerer’s (2013) “Honorable Harvest” from *Braiding Sweetgrass*, presented as a call to love in action, a guideline to love as the practice of freedom, and as an expression of CEL. May we live in love and witness the power of its restoration.

Know the ways of the ones who take care of you, so that you may take care of them.

Introduce yourself. Be accountable as the one who comes asking for life.

Ask permissions before taking. Abide by the answer.

Never take first. Never take last.

Take only what you need.

Take only that which is given.

Never take more than half. Leave some for others.

Harvest in a way that minimizes harm.

Use it respectfully. Never waste what you have taken.

Share.

Give thanks for what you have been given.

Give a gift, in reciprocity for what you have taken.

Sustain the ones who sustain you and the earth will last forever.

- Kimmerer (2013)

AFTERWORD

The defense of this dissertation occurred on March 19, 2020: the first day of the Persian New Year (“Norooz”) celebrating the Vernal/Spring Equinox and welcoming a new season ahead, and the onset of the quickly spreading Coronavirus, known as COVID-19 – little could we comprehend the depth and significance of what was soon to unfold. A week prior, amid the inception of a global pandemic, I was confronted with the decision to either retain the physically scheduled space for the defense on the UCLA campus, or to hold an online meeting. I opted for a virtual defense. Mere hours following my dissertation defense, California Governor Gavin Newsom issued a State of Emergency and subsequent “stay-at-home” Order as a result of the rapid surge and threat of COVID-19.

Dr. Richard Kahn, a dissertation committee member, mentor, colleague, and friend reminded me of our responsibility as ecopedagogues to be at the helm of such issues and to proceed with educating others around the body of knowledge we spent so many years exchanging and attaining. I thus reflected on our understanding of the gravity of the situation as holders of a wealth of shared knowledge systems, critical ecoliteracy analyses, and BIPOC and intersectional insight regarding the fragility of our deeply entrenched interconnected world. As the COVID-19 pandemic worsened, these realities were powerfully, holistically, and profoundly amplified, assessed, and actualized.

By the end of March, New York Governor Andrew M. Cuomo sent out a tweet, calling the Coronavirus “the great equalizer” in its ability to attack anyone, and ecofascists continued to emphasize the *beauty* of the pandemic in its ability to achieve environmental climate justice (Jones & Jones, 2020; Corcione, 2020). The positive language around COVID-19 was that the universality of the virus was allowing us to slow down and connect with our loved ones. As the

majority of the globe entered some form of quarantine, the worldwide event forced all to encounter our coexistence and interconnected relationships in the era of the Anthropocene.

Yet, these idyllic messages miserably fail to address how imperialist corporate capitalism and neoliberal globalization catalyze climate destabilization and the uneven burden placed on those at the margins. While COVID-19 undoubtedly heightened our grasp of our interrelationships, this ecological pandemic remains a far cry from a good omen for those ascribed to the margins. Specifically, BIPOC and those at the intersections continue to bear the brunt of harm to their health, wellbeing, and quality of life.

Those with more privilege (i.e. wealth, status, and power) generally have greater access to healthcare and other resources and have thus been able to navigate time away from work and social distancing with greater ease. This was and is not the same reality for those ascribed to the fringes: BIPOC and those at the intersections of marginalization (e.g. QTPOC),²⁹² those undocumented, Indigenous folks on reservations, individuals with health issues and especially high-risk people (i.e. those immunocompromised), essential workers, low-wage workers, low-income persons in general, houseless populations, people incarcerated, those with disabilities, and seniors. Indeed, vulnerable populations disproportionately encounter graver outcomes in this pandemic, and the numbers display how contraction of the virus and associated morbidity rates are massively disparate for these populations, due much in part to such issues as higher exposure, pre-existing health conditions, less access to healthcare, medical discrimination, less access to basic needs, and class disparities.

The compiled data further disclose the inequities. Based on the most recent statistics presented by the Center for Disease Control and Prevention (CDC, 2020), as of June 22, 2020, a total of 119,615 people in the U.S. died from COVID-19. As of mid-April, the Navajo Nation,

²⁹² Note the acronym, QTPOC, refers to Queer Trans People of Color.

surpassed the morbidity rates of 13 states combined, and passed New York and New Jersey by mid-May for the highest per-capita infection rate in the U.S..²⁹³ About one-third of Coronavirus deaths as of May 11, 2020 in the U.S. are nursing home residents or workers (Yourish, Lai, Ivory, & Smith, 2020). Further, the available data pertaining to “race and ethnicity of the deceased is known for 89%” of 99,000 deaths, which APM Research Lab “compiled from Washington, D.C. and 40 states” in total.²⁹⁴ Although it remains incomplete particularly in relation to First Nation groups (due to stated “limited and uneven” data), “the existing data reveals deep inequities by race, most dramatically for Black Americans.” More specifically, “[d]isproportionately high mortality is more widespread for Black Americans than any other group.” While Black Americans collectively represent approximately 13% of the population, they have suffered 25% of deaths from COVID-19 and are thus dying at a rate almost double their population share (APM, 2020).²⁹⁵ And as the study reveals, “the mortality rate for Black Americans is 2.4 times as high as the rate for Whites, and 2.2 times as high as the rate for Asians and Latinx.”²⁹⁶

²⁹³ It is useful to note that according to the president of the Navajo Nation, Jonathan Nez, a major reason why the numbers for the Navajo Nation may be so high is due partly to very aggressive testing of the virus (NPR, 2020).

See also: Silverman, Toropin, Sidner, & Perrot, 2020, and Touchman, 2020, via *CNN*.

²⁹⁴ Note that the data presented by APM Research Lab covers approximately 88,000 deaths of 99,000 known cases as of May 27, 2020 and intend to update their data on June 10, 2020.

As pulled from the APM website: “[The APM Research Lab is home to a team of researchers who inform the public with both original and curated research, facts, and analysis. The Research Lab augments the work of other members of the American Public Media Group family. American Public Media is the largest station-based public radio organization in the U.S., combining multi-regional station operations, national content creation and distribution in one organization.]”

²⁹⁵ This is of course based upon data where race and ethnicity are known.

²⁹⁶ The study exhibits a total of 21,878 Black Americans is known to have lost their lives through May 26 to the virus (APM, 2020).

The virus has also evidenced clear class divides. In our neoliberal-run state, corporate bailouts and spikes in CEO earnings are commonplace, all while literal millions are left hopeless and without prospective work opportunity. Berkeley professor, former Secretary of Labor, and Co-founder of Inequality Media, Robert Reich (2020) writes that in a matter of two months, 40,000,000 Americans lost their jobs, all the while billionaire wealth during that same timeframe amounted to \$434,000,000,000.²⁹⁷ As Reich (2020b) further explains, while millions of Americans remained jobless and struggling to pay for basic needs, America's billionaires earned massive economic growth: between March 18 and April 22, they gained \$308,000,000,000 – that is \$8,555,555,555 a day. Though not entirely stark due to the aid of a \$1,200 federal stipend, small business loans, low-interest rates, unemployment benefit support, and pandemic financial assistance, the long-term effects of such funding are unknown – and lest we not forget the financial crisis of 2007-2008 and its direct ties to subprime home mortgage loans stateside, which led to a global recession.

Certainly, analysis of first-world framing and “discussions around the virus...stained with economic elitism” dramatically expose the inequities (Blow, 2020). Many essential workers are unable to “stay at home” and quarantine – while they are making the lives of the majority easier, they are forced to place themselves, their families, and their communities’ lives at greater risk. A study by the Economic Policy Initiative (Gould & Shierholz, 2020) exhibited how “only 9.2% of workers in the lowest quartile of the wage distribution can telework compared with 61.5% of workers in the highest quartile.”²⁹⁸ And as *New York Times* columnist, *CNN*

²⁹⁷ Likewise, Reich relays that billionaire philanthropy is insufficient as individuals such as Jeff Bezos earned \$34,600,000,000 in the last two months – 346 times the \$100 million self-proclaimed donation Bezos reminds us he offered to food banks (Reich, 2020c: May 22).

²⁹⁸ As the EPI (Gould & Shierholz, 2020) report states: “In fact, less than 30% of workers can work from home, and the ability to work from home differs enormously by race and ethnicity...Asian workers are the most likely to be able to work from home, followed by non-Hispanic and white workers. Only 16.2% of Hispanic workers and 19.7%

commentator, and author, Charles M. Blow (2020) wrote regarding the privilege of social distancing, those at the economic margins are confronted with two “terrible choices: Stay home & risk starvation or go to work & risk contagion.”

While we are still grappling with the COVID-19 pandemic, news media suggest global cases are decreasing, with incremental governmental and state-led plans to reopen the economy. However, the virus has taken a backseat as the City of Minneapolis, our City of Los Angeles, and many other cities around our nation began declaring nightly curfews. These orders commenced following the viral video of the brutal state-sanctioned murder of 41-year-old George Floyd, captured on film by Darnella Fraizer, of a white police officer burying his knee into Floyd’s neck for 8 minutes and 46 seconds while two other officers held him down and another watched.

The grief and indignation of the unjust murder of Floyd, who was killed on video in broad daylight by a white officer as he is heard saying “I can’t breathe” and calling out for his mother in his last moments, catalyzed an initial uprising of thousands of diverse residents in Minneapolis. However, Floyd’s tragic murder in Minneapolis quickly grew into a national and international explosion of outrage from people of all races, ethnicities, genders, sexual orientations, classes, religious and spiritual backgrounds, and ages. Protests occurred in 700 cities across all 50 states in the nation and 18 countries worldwide (Haseman, Zaiets, & Thorson, 2020). Thousands of protestors were arrested due to a failure to arrest four officers. However, the massive global response to the killing of Floyd occurred because his murder is not an isolated incident. An excessive number of videos and stories surfaced the previous couple of weeks exposing innocent Black people being terrorized and killed by police and white-supremacists: Ahmaud Arbery, 25, killed by white supremacists in South Georgia while jogging; Breonna Taylor, 26, an emergency medical technician who was fatally shot in her own living room in

of black workers can telework.”

Louisville, KY by police; Tony McDade, a Black trans man murdered in Florida by Tallahassee police; and the aforementioned killing of George Floyd. Indeed, the agitation from the global public is in defense of Black lives in conjunction with the gross number of Black people killed by white people in a world dominated by systemic and systematic white supremacy and anti-Blackness.²⁹⁹ The recurrence of this injustice merely mirrors the structural injustice documented throughout this dissertation.

At the turn of a new season, we are thus facing a larger pandemic with roots running far deeper than COVID-19: the global prevalence and perpetuation of an embedded history and enculturation of systemic white supremacy and anti-Blackness as dominant ideology and normal practice. The pandemic of white supremacy is directly relevant to critical ecopedagogy and ecoliteracy, as visible via the impact of the Coronavirus on marginalized groups. The current movement as such provided an opening for real leftist transnational solidarity. Taking the educational arena online and to the streets, the agitation is in direct service to the people. This is the work of critical ecopedagogues and critical educators. This is the work of a society that recognizes the opportunity to live a dignified life should not be reserved for a select group.

State-sanctioned violence, such as that practiced by the police who are an apparatus of the state and not the people, is an expression of the influence of interlocking systems of domination that are upheld and maintained by white supremacy, which disproportionately targets

²⁹⁹ As Sonya Renee Taylor (2020) expressed via Instagram, the conversations about the social unrest from non-Black voices and white people specifically should not be about whether or not Black people deserve to live, but rather about interrogating and excavating the inhumanity and delusions of white supremacy. As Taylor states: “Black people are suffering at the hands of whiteness and white people who live inside the delusions of white supremacy and construct systems and structures to enact the delusions of white supremacy.” Taylor relays that the conversation needs to be about “[why white people made the ghetto, chattel slavery, created redlining, mission assignments in Black and Brown countries and then went to murder them, and why white people needed colonialism].” As Taylor poignantly states: “white people need to start asking about their whiteness” and that the conversation about whether or not a Black person is worthy of life, as if Black people are some sort of object, is itself white supremacy in action. Taylor thus suggests: start talking about, interrogating, and excavating the sickness that is whiteness – the unjust, heinously violent, detached systems and structures that whiteness has wrought in this world.

and harms BIPOC and those at the intersections.³⁰⁰ It is the differential treatment of white gun-toting protestors in Michigan on the state capitol steps mid-May of 2020, opting to not wear masks or social distance while armed, some even spitting in officer's faces with no repercussion, while social agitators who watched the video of yet another innocent Black life taken in broad daylight – protestors defending their lives against the quotidian genocide of Black people – are tear gassed, shot with rubber bullets, arrested, cuffed, held for inordinate lengths of time, and forced into citywide curfews all while being painted as the problem by the 45th president and right-wing media. The reality is, whether via police brutality, white supremacist violence, or the outcomes of systemic injustice as displayed with the COVID-19 morbidity rates for Black people, BIPOC and those at the intersections will face harm and injustice disproportionately until we completely alter white supremacist orientations to the world, and that begins by interrogating and confronting the ways that whiteness and white people benefit from and participate in perpetuating an oppressive, violent, and unfree status quo that is supported by people upholding the state through interlocking systems of domination. Therefore, there is no freedom until all people are free and that begins with dismantling white supremacy and assuring Black liberation and justice.³⁰¹ There is no freedom until #Blacklivesmatter. There is no freedom until BIPOC and those at the intersection are assured a life of dignity – where basic needs are secured, rights are guaranteed, justice is served, and quality of life is ensured.

As we confront a new reality and unknown future conscious of our interconnectivity, the hope is that the COVID-19 pandemic dies down while protests continue forth and actualize

³⁰⁰ Let us recall that the legal system was created by White men in positions of power for their own protection, as is visible in the original Constitution, which is ripe with three clearly anti-Black provisions that led to the Civil War of 1860-1864 (the three-fifths clause, the runaway slave clause, and the inability to ban the import of enslaved persons for 21 years until 1808). This racism is displayed via a number of cases during chattel slavery in the U.S., the Jim Crow era, following the *Brown* decision, and it continues to this day. For more, see: Von Blum's: *Racism and the law: Second edition* (2016).

³⁰¹ As many have relayed, anti-Blackness is prevalent even in POC communities.

systemic change. As BIPOC and those at the intersections continue to press forward theories and practices reflective of the CEL offered through this dissertation, our work as pedagogues is to continue cultivating a way toward conceiving and actualizing the world that BIPOC and those at the intersections envision – a world guided by BIPOC and those at the intersections, their knowledge systems, and imagined futurities, and where BIPOC and those at the intersections are free to reclaim, revitalize, and reimagine various expressions of deconstructed love in research, theory, practice and pedagogy. In this light, may we continue to hold ourselves and be held accountable. May we remain humble to accept when others display how we perpetuate injustice and inherently dismantle and alter our thoughts and actions thereafter. May we renounce injustice wherever and whenever we witness it occur and stand for the dignity of BIPOC. May we elevate BIPOC and those at intersections as vanguards and adequately compensate them for their shared resources and knowledge. May we recognize the potential to positively impact our community through symbiotic mutualism – or rather, investment in community-led actions and direct and mutual aid, community advocacy and collective efforts, and allyship via dissident and coalition building and practice.³⁰² May we learn from history and do better, be better. May we remember that BIPOC and those at the intersections understand the complexity of their/our wholeness in their/our desired, collective visions and remain rooted in deconstructed expressions of love as a way of life. And may this deconstructed, reclaimed, and reimagined love continue to guide us and be our collective goal as we witness the power of its life-affirming restoration.

³⁰² Let us be clear: we should love our neighbors, but we must deeply love ourselves. Thus, as we are witnessing, defending self against state-sponsored violence is radical self-love. The current agitation for social justice is self-defense against violence and it is an act of self-love, community love, and should be regarded as an expression of love as a guiding paradigm. Meaning, it is not for anyone but the marginalized communities who are targeted to determine the parameters of their agitation. As Sima Lee (2020) so poignantly relayed via Twitter: “WE. DO. NOT. HAVE. TO. PEACEFULLY. PROTEST. OUR. OWN. GENOCIDE.”

APPENDIX

CRITICAL ECOPEDEGOGY

Venoosheh Khaksar

Course Syllabus Sample

General Description

We are in the midst of the Anthropocene, an era of global ecological crises influenced primarily by human beings, which is threatening the very existence of multiple life forms on our planet. This course explores the role of critical, multiperspectival ecological education and practice in our current geological epoch. Particular attention will be directed at global holistic health and wellbeing in the face of worldwide environmental destruction and dehumanization projects. The major focus will be on the impact of environmental injustice on the natural earth, other-than-human inhabitants, and Black, Indigenous, and People of Color (BIPOC) and those at the intersections of marginalization who confront disproportionate harm.

Course Overview

Theoretical and Historical Background

In this section, the emphasis will be on the development of the ecopedagogy movement from its inception to its current evolution. The establishment of ecopedagogy as a growing discipline of study within academic institutions and as part of a planetary movement for social and educational change via grassroots actions and worldwide initiatives will be explored. The theories, motivations, and projects of major intellectual contributors to the discipline and movement will be examined. In addition, the exhaustive body of scholarship produced by BIPOC and intersectional experts will be presented as foundational to the actualization and advancement of critical ecopedagogy and the movement toward ecoliteracy.

Major Course Themes:

Each week we will consider the impact of global anthropogenic ecocrises in the modern era. Examples include the following:

1. The history of Ecopedagogy
2. Biological Diversity threats, hotspots, and conservation
3. Cultural Diversity protection, revitalization, and compensation
4. Linguistic Diversity loss and reclamation
5. Biocultural Diversity (biological, linguistic, and cultural) in the Anthropocene
6. Environmentalism and Sustainability: A Global North and Global South Politic
7. Environmental Justice and Justice-oriented Sustainability
8. The Ecological Impacts of Greenwashing
 - a. MNCs, governments, and the Neoliberal Academic Industry
 - b. Climate destabilization
 - c. Air, land, and water pollution, deforestation, resource extraction, waste disposal, toxics, energy efficiency, food deserts, agriculture and livestock industry, etc.
 - d. Targeted attacks against nature defenders and human rights activists
9. BIPOC and Intersectional Vanguard
10. Desire-based frameworks

Course Texts

1. Freire, P. (2010). *Pedagogy of the oppressed* (revised). *New York: Continuum.*
2. Louisa Maffi, -- (2001). On biocultural diversity: linking language, knowledge, and the environment. *Smithsonian Institute.*
3. Agyeman, J, Bullard R and Evans, B. (2010) ‘Exploring the nexus: bringing together sustainability, environmental justice and equity.’ *Space and Polity* Vol. 6 No. 1 pp 70-90.
4. Kahn, R. (2010). *Critical pedagogy, ecoliteracy, & planetary crisis: The ecopedagogy movement* (Vol. 359). Peter Lang.
5. Grande, S. (2015). *Red pedagogy: Native American social and political thought.* Rowman & Littlefield.
6. Crenshaw, K. (1990). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stan. L. Rev.*, 43, 1241.
7. Tuck, E. (2009). Suspending damage: A letter to communities. *Harvard Educational Review*, 79(3), 409-428.
8. Solórzano, D. G., & Yosso, T. J. (2002) Critical race methodology: Counter-storytelling as an analytical framework for education research. *Qualitative inquiry*, 8(1), 23-44.
9. Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, 8(1), 69-91.

Selected materials including multimedia and guest lectures will supplement class discussions.

REFERENCES

- Agnoletti, M., & Rotherham, I. D. (2015). Landscape and Biocultural Diversity. *Biodiversity and Conservation*, 24, 3155-3165.
- Agyeman, J. (2017). *Introducing just sustainabilities: Policy, planning, and practice*. Zed Books Ltd.
- Agyeman, J., & Evans, B. (2004). 'Just sustainability': the emerging discourse of environmental justice in Britain? *The Geographical Journal*, 170(2), 155-164.
- Agyeman, J., Bullard, R. D., & Evans, B. (Eds.). (2003). *Just sustainabilities: Development in an unequal world*. MIT press.
- (2010). 'Exploring the nexus: bringing together sustainability, environmental justice and equity.' *Space and Polity* Vol. 6 No. 1 pp 70-90.
- Agyeman, J., Schlosberg, D., Craven, L., & Matthews, C. (2016). Trends and directions in environmental justice: from inequity to everyday life, community, and just sustainabilities. *Annual Review of Environment and Resources*, 41.
- Al Jazeera*. (2019). Amazon burning: Brazil reports record surge in forest fires. Al Jazeera: News/Environment. Aug. 21, 2019. *Al Jazeera*.
<<https://www.aljazeera.com/news/2019/08/amazon-burning-brazil-reports-record-surge-forest-fires-190821052601171.html>>
- (2019b). Brazil Amazon forest defender shot dead by illegal loggers. November 3, 2019. Al Jazeera: News/Brazil. *Al Jazeera*.
<<https://www.aljazeera.com/news/2019/11/brazil-amazon-forest-defender-shot-dead-illegal-loggers-191103052028290.html>>
- Allen, A., & You, N. (2002). Sustainable urbanization: Bridging the green and brown agendas. UN-HABITAT.
- Allen, A. (2009). The "Green" Hypocrisy: America's Corporate Environment Champions Pollute The World'. Ed. McIntyre, Douglas A. *24/7 Wall Street*. April 2, 2009.
<<https://247wallst.com/energy-business/2009/04/02/the-%e2%80%9cgreen%e2%80%9d-hypocrisy-america%e2%80%99s-corporate-environment-champions-pollute-the-world/>>
- Ani, M. (1997). *Let the circle be unbroken: The implications of African spirituality in the diaspora*. Nkonimfo Publications.
- Annan, K. (2000). We the Peoples - The Role of the United Nations in the 21st Century. UN Department of Public Information.
<http://www.un.org/en/events/pastevents/pdfs/We_The_Peoples.pdf>
- Ansley, F. L. (1989). Stirring the ashes: Race class and the future of civil rights scholarship. *Cornell L. Rev.*, 74, 993.

- Anti-Slavery (2018) What is human trafficking?
 <<https://www.antislavery.org/slavery-today/human-trafficking/>>
- Antunes, A., & Gadotti, M. (2005). Eco-pedagogy as the Appropriate Pedagogy to the Earth Charter Process. In P. Blaze Corcoran (Ed.), *The Earth Charter in Action: Toward a Sustainable World*. Amsterdam: KIT Publishers.
- APM (American Public Media). (2020). The Color of Coronavirus: COVID-19 Deaths by Race and Ethnicity in the U.S. May 27, 2020. *American Public Media*.
 <<https://www.apmresearchlab.org/covid/deaths-by-race#reporting>>
- Arheghan, O. (2018). A beginner's guide to trans awareness week. *GLAAD*.
 <<https://www.glaad.org/amp/beginner-guide-transweek-2018>>
- Aronowitz, S. (2008). *Against schooling: For an education that matters*. Routledge.
- ATAG (Air Transport Action Group). (2018). Facts & Figures.
 <<https://www.atag.org/facts-figures.html>>
- Austin, P. K. (2008). *Living, endangered, and lost: One thousand languages*. University of California Press.
- Baker, B. (2014). The 10 Most Inspirational Sustainability Initiatives in the U.S. EcoWatch. July 14, 2014.
 <<https://www.ecowatch.com/the-10-most-inspirational-sustainability-initiatives-in-the-u-s-1881933006.html>>
- Baker, S. (2006). *Sustainable Development*. Routledge.
- Bales, K., Trodd, Z., & Williamson, A. K. (2009). *Modern slavery: The secret world of 27 million people*. Oneworld Publications Limited.
- Barnes, D. K., & Kaiser, S. (2009). Melting of polar icecaps: impact on marine biodiversity. *Fisheries and Aquaculture-Volume V*, 345.
- Bates, L., Curry-Stevens, A. & Coalition of Communities of Color (2014). *The African-American Community in Multnomah County: An Unsettling Profile*. Portland, OR: Portland State University.
- Bauer, S. (2018). The True History of America's Private Prison Industry Sept. 25, 2018. *Time*.
 <<https://time.com/5405158/the-true-history-of-americas-private-prison-industry/>>
- Beale, L. (2018). He worked undercover in a for-profit prison and it got ugly. Sept. 16, 2018. *The Daily Beast*.
 <<https://www.thedailybeast.com/he-worked-undercover-in-a-for-profit-prison-and-it-got-ugly>>

- Beck, Eckardt C. (1979). The love canal tragedy. *EPA Journal*.
<<https://archive.epa.gov/epa/aboutepa/love-canal-tragedy.html>>
- Benns, W. (2015). American slavery, reinvented. Sept. 21, 2015. *The Atlantic*.
<<https://www.theatlantic.com/business/archive/2015/09/prison-labor-in-america/406177/>>
- Benton, M. J. (2016). Origins of biodiversity. *PLoS biology*, 14(11), e2000724.
- Bergold, J., & Thomas, S. (2012). Participatory research methods: A methodological approach in motion. *Historical Social Research/Historische Sozialforschung*, 191-222.
- Berkes, F. (1999). Sacred Ecology: Traditional ecological knowledge and resource management. *Philadelphia and London: Taylor and Francis*.
-- (2008). Sacred Ecology 2nd ed. *Philadelphia and London: Taylor and Francis*.
-- (2009). Indigenous ways of knowing and the study of environmental change. *Journal of Royal Society of New Zealand*, 39:4, 151-156
- Best, F. (1988). The metamorphoses of the term 'pedagogy'. *Prospects*, 18(2), 157-166.
- Bird-David, N. (1999). "Animism" revisited: personhood, environment, and relational epistemology. *Current anthropology*, 40(S1), S67-S91.
- Blackhawk, N. (2013). Teaching the Columbian Exchange. *OAH Magazine of History*, Vol. 27: (4), 31–34. October 1, 2013.
<<https://academic.oup.com/maghis/article/27/4/31/1113970/>>
- Blow, C. (2020). Social Distancing is a Privilege: The idea that this virus is an equal-opportunity killer must itself be killed. April 5, 2020. *New York Times*.
<nytimes.com/2020/04/05/opinion/coronavirus-social-distancing.html>
- Boadle, A., Benassatto, L., & Baum, B. (2019). Illegal loggers kill Amazon indigenous warrior who guarded forest, wound another. November 2, 2019. *Reuters*.
<<https://www.reuters.com/article/us-brazil-indigenous/illegal-loggers-kill-amazon-indigenous-warrior-who-guarded-forest-wound-another-idUSKBN1XC0GR>>
- Boff, L. (2008). *Essential Care: An Ethics of Human Nature*. Waco, TX: Baylor University Press.
-- (1997). *Cry of the Earth, Cry of the Poor*. Maryknoll, NY: Orbis Books.
- Boffey, D. (2019). 'Bike country No 1': Dutch go electric in record numbers. March 1, 2019. *The Guardian*.
<<https://www.theguardian.com/world/2019/mar/01/bike-country-n0-1-dutch-electric-record-numbers-e-bikes-netherlands>>
- Bogitsh, B. J., Carter, C. E., & Oeltmann, T. N. (2019). *Human Parasitology*. Academic Press.

- Borrini-Feyerabend, G., MacDonald, K., & Maffi, L. (2004). History, culture and conservation. *Policy Matters*, 13(1), 308.
- Borrunda, A. (2019). See how much of the Amazon is burning, how it compares to other years. August 29, 2019. National Geographic: Environment. *National Geographic*.
<<https://www.nationalgeographic.com/environment/2019/08/amazon-fires-cause-deforestation-graphic-map/>>
- Breiting, S., & Wickenberg, P. (2010). The progressive development of environmental education in Sweden and Denmark. *Environmental Education Research*, 16(1), 9-37.
- Brodwin, E., & Johnston, M. (2017). The countries most likely to survive climate change in one infographic. *Independent*. August 27, 2017.
<<http://www.independent.co.uk/news/science/the-countries-most-likely-to-survive-climate-change-in-one-infographic-a7915166.html>>
- Brooke, J. (1992). THE EARTH SUMMIT; U.N. Chief Closes Summit With an Appeal for Action. June 15, 1992. *The New York Times*.
<<https://www.nytimes.com/1992/06/15/world/the-earth-summit-un-chief-closes-summit-with-an-appeal-for-action.html>>
- Brown, A.M. (2017). *Emergent Strategy*. AK Press.
- Bryant, B. I., & Mohai, P. (1992). *Race and the incidence of environmental hazards*. Westview Press.
- Bryant, D., Burke, L., McManus, J., & Spalding, M. (1998). Reefs at risk: a map-based indicator of threats to the worlds coral reefs. World Resources Institute.
- Buber, M. (1970). *I and thou*. (W. Kaufmann, Trans.). New York: Scribner.
- Bullard, R. D. (1990). *Dumping in Dixie: Race, class, and environmental quality*. Westview Press.
- (1993). Race and environmental justice in the United States. *Yale J. Int'l L.*, 18, 319.
- (2001). Environmental justice in the 21st century: Race still matters. *Phylon (1960-)*, Vol. 49, no. 3/4 (2001): 151-171.
- Bullard, R. D., & Johnson, G. S. (2000). Environmentalism and public policy: Environmental justice: Grassroots activism and its impact on public policy decision making. *Journal of Social Issues*, 56(3), 555-578.
- Burger, J. (1990). *The Gaia atlas of first peoples: A future for the Indigenous world*. Doubleday.
- Büscher, B. (2010). Anti-politics as political strategy: Neoliberalism and transfrontier conservation in southern Africa. *Development and change*, 41(1), 29-51.
<<https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-7660.2009.01621.x>>

- Bybee, E. R., Henderson, K. I., & Hinojosa, R. V. (2014). An Overview of US Bilingual Education: Historical Roots, Legal Battles, and Recent Trends.
- Cabral, A. (2016). *Resistance and decolonization*. Rowman & Littlefield.
- Caley, M. J., Fisher, R., & Mengersen, K. (2014). Global species richness estimates have not converged. *Trends in Ecology & Evolution*, 29(4), 187-188.
- Camara, H. 1995. *Sister Earth: Creation Ecology & The Spirit*. New York: New City Press.
- Campbell, T., & Mollica, D. (Eds.). (2009). *Sustainability*. Ashgate.
- Carpenter, S. R., Walker, B. H., Anderies, J. M., and Abel, N. (2001). From metaphor to measurement: resilience of what to what? *Ecosystems*.
- CBD (Convention on Biological Diversity). (2010). Meeting: International Conference on Biological and Cultural Diversity: Diversity for Development – Development for Diversity. June 8-10, 2010.
<<https://www.cbd.int/doc/meetings/development/icbcd/official/icbcd-scbd-unesco-en.pdf>>
- (2010b). The importance of biodiversity to human health. Cohab Initiative Policy Brief. UN CBD, COP10. October 2010.
< <https://www.cbd.int/doc/health/cohab-policy-brief1-en.pdf>>
- (2010c). Conference on Biological and Cultural Diversity. Text of the Convention: Article 2. Use of terms. June 8-10, 2010.
<<https://www.cbd.int/convention/articles/default.shtml?a=cbd-02>>
- (2009). Azores Scientific Criteria and Guidance for Identifying Ecologically or Biologically Significant Marine Areas and Designing Representative Networks of Marine Protected Areas in Open Ocean Waters and Deep Sea Habitats. Montréal, Canada: Secretariat of the Convention on Biological Diversity.
- (2019). About Marine and Coastal Biodiversity: What's the problem? Retrieved February 28, 2019.
<<https://www.cbd.int/marine/problem.shtml>>
- (2019b). Biological and Cultural Diversity. Retrieved March 21, 2019.
<<https://www.cbd.int/tk/culturaldiversity/messages.shtml>>
- CDC (Center for Disease Control). (2020). Coronavirus Disease 2019 (COVID-19): Cases in the U.S. *Centers for Disease Control and Prevention*.
<<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html>>
- Ceballos, G., Ehrlich, P. R., Barnosky, A. D., García, A., Pringle, R. M., & Palmer, T. M. (2015). Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Science advances*, 1(5), e1400253.
- Champagne, D. (2006). *Social change and cultural continuity among native nations*. Rowman Altamira.

- Chavis, B. J. & Lee, C. (1987). *Toxic Waste and Race in the United States: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites*. United Church of Christ: Commission for Racial Justice.
- CHEJ (Center for Health, Environment and Justice). (2016). Love Canal: Fact Pact. Center for Health, Environment and Justice. Accessed, January 31, 2019.
<<http://depts.washington.edu/envir202/Readings/Reading05.pdf>>
- Childress, S., (Ed) and Ruble, K., Carah, J., & Ellis, A. (2019). We Found Dozens of Uncounted Deaths During the Flint Water Crisis: Here's How. Sept. 10, 2019. PBS: Frontline. *PBS.org*.
<<https://www.pbs.org/wgbh/pages/frontline/interactive/how-we-found-dozens-of-uncounted-deaths-during-flint-water-crisis/>>
- Chomsky, N. (1999). *Profit over people: Neoliberalism and global order*. Seven Stories Press.
- CI (Conservation International). (2019). Hotspots: Targeted investment in nature's most important places. Conservation International.
<<https://www.conservation.org/How/Pages/Hotspots.aspx>>
- Clay, J. W. (1988). *Indigenous Peoples and Tropical Forests: Models for Land Use and Management in Latin America (Cultural Survival Report)*. Cambridge, MA.
- Coben, D. (1998). *Radical Heroes: Gramsci, Freire, and the Politics of Adult Education*.
- Colley, A. (2006). *Sustainability*. Envirobook.
- Collins, P. H. (1990). Black feminist thought in the matrix of domination. *Black feminist thought: Knowledge, consciousness, and the politics of empowerment*, 221-238.
- Combahee River Collective. (1979). A Black feminist statement. *Capitalist Patriarchy and the Case for Socialist Feminism*, ed. by Zillah Einstein. Monthly Review Press (210-218).
- Cook, J., Nuccitelli, D., Green, S. A., Richardson, M., Winkler, B., Painting, R., Way, R., Jacobs, P., & Skuce, A. (2013). Quantifying the consensus on anthropogenic global warming in the scientific literature. *Environmental research letters*, 8(2), 024024.
- Copernicus. (2019). Fires Ravage the Amazon. Aug. 27, 2019. *Copernicus*.
<https://www.esa.int/Our_Activities/Observing_the_Earth/Copernicus/Sentinel-3/Fires_ravage_the_Amazon>

- Corbett, J. J., Winebrake, J. J., Green, E. H., Kasibhatla, P., Eyring, V., & Lauer, A. (2007). Mortality from ship emissions: a global assessment. *Environmental science & technology*, 41(24), 8512-8518. <<https://pubs.acs.org/doi/pdf/10.1021/es071686z>>
- Corcione, A. (2020). Eco-fascism: What It Is, Why It's Wrong, and How to Fight It. April 30, 2020. *Teen Vogue*.
<<https://www.teenvogue.com/story/what-is-ecofascism-explainer>>
- Cornelius, J. (1983). "We Slipped and Learned to Read:" Slave Accounts of the Literacy Process, 1830-1865. *Phylon (1960-)*, 44(3), 171-186.
<<https://www.jstor.org/stable/pdf/274930.pdf?refreqid=excelsior%3Ac0a39d41bc0d6663ab2718e504d8f61e>>
- FPCC (First Peoples Cultural Council). (2016). Language revitalization strategies. *Victoria, BC: First Peoples' Cultural Council*.
<http://www.fpcc.ca/language/toolkit/Language_Revitalization_Strategies.aspx>
- Crenshaw, K. (1990). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stan. L. Rev.*, 43, 1241.
- Crystal, D. (2000). *Language death*. Cambridge University Press.
- Culliton, B. J. (1982). The academic-industrial complex.
- Culler, J. D. (1976). *Saussure* (Vol. 3743). Collins.
- Cutter, S. L., 1995, Race, class and environmental justice. *Progress in Human Geography*, Vol. 19, 111-122.
- Davidson-Hunt, I. J., & Michael O'Flaherty, R. (2007). Researchers, indigenous peoples, and place-based learning communities. *Society and Natural Resources*, 20(4), 291-305.
- Davim, J. P. (2017). *Curricula for Sustainability in Higher Education*. Springer.
- Delisle, R. G. (Ed.). (2017). Springer.
- DeLong, D. C. (1996). Defining biodiversity. *Wildlife Society Bulletin (1973-2006)*, 24(4), 738-749.
- Democracy Now!* (2011). 8.9 Earthquake Triggers Devastating Tsunami in Japan. March 11, 2011. *Democracy Now!*
<<http://www.democracynow.org/2011/3/11/headlines#31111>>

- (2013). Climate Tipping Point? Concentration of Carbon Dioxide Tops 400 ppm for First Time in Human History. May 13, 2013.
<https://www.democracynow.org/2013/5/13/climate_tipping_point_concentration_of_carbon>
 - (2014). We are on a Course Leading to Tragedy: At U.N. Talks, Kerry Delivers Urgent Plea on Climate Change. December 12, 2014.
<http://www.democracynow.org/2014/12/12/we_are_on_a_course_leading>
 - (2016). Standing Rock Sioux Pediatrician: Threat from Fracking Chemicals is “Environmental Genocide”. Oct. 18, 2016.
<https://www.democracynow.org/2016/10/18/standing_rock_sioux_pediatician_threat_from>
 - (2017). Hurricane Harvey: zipcode and race determine who will bear burden of climate change. August 29, 2017.
<https://www.democracynow.org/2017/8/29/hurricane_harvey_zip_code_race_determine>
 - (2019). Harvard’s Tacit Endorsement of Slavery. April 4, 2019.
<https://www.democracynow.org/2019/4/4/harvards_tacit_endorsement_of_slavery>
 - (2019b). Newark Water Crisis: Mayor Ras Baraka Responds to Critics & Promises City Is Working on Solution. October 1, 2019.
<https://www.democracynow.org/2019/10/1/newark_water_crisis_mayor_baraka>
 - (2019c). Five Indigenous Leaders Massacred in Colombia; New Wave of Violence Feared as 2,500 Troops Deployed. November 1, 2019.
<https://www.democracynow.org/2019/11/1/cristina_bautista_colombia_indigenous_leaders_killed>
- Dietz, G. (2019). Contextualizing Native Resistance: Precedents for the Movement Against the Dakota Access Pipeline. May 1, 2017. *Spectrum*: Vol. 6: Iss. 1 , Article 3.
<<https://scholars.unh.edu/cgi/viewcontent.cgi?article=1040&context=spectrum>>
- Dirzo, R., & Raven, P. H. (2003). Global state of biodiversity and loss. *Annual review of Environment and Resources*, 28 (1), 137-167.
- di Leonardo, M. (2004). Human cultural diversity. *Race and human variation: setting an agenda for future research and education*. Alexandria, VA: American Anthropological Association.
- Dodman, M. (2014). Language, multilingualism, biocultural diversity and sustainability. *Visions for Sustainability* (2), 11-20.
- DOGGR (Division of Oil, Gas, and Geothermal Resources). (2005). Well finder: DOGGR GIS. California Department of Conservation: Geographical Information System (GIS). Retrieved: October 1, 2019.
<https://www.conservation.ca.gov/dog/pubs_stats/annual_reports/Pages/annual_reports.aspx>

- Douglass, F. (1845). *Narrative of the Life of Fredrick Douglass: An American Slave Written by Himself*. Boston: *Anti-Slavery Office*.
- Downey, L., & Hawkins, B. (2008). Race, income, and environmental inequality in the United States. *Sociological Perspectives*, 51(4), 759-781.
<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2705126/>>
- Downs, R. (2013). Who's getting rich off the prison-industrial complex? May 17, 2013. *Vice News*.
<https://www.vice.com/en_us/article/mvpzpkp/whos-getting-rich-off-the-prison-industrial-complex>
- Dryzek, J. S., Downes, D., Hunold, C., Schlosberg, D., & Hernes, H. K. (2003). *Green states and social movements: environmentalism in the United States, United Kingdom, Germany, and Norway*. OUP Oxford.
- Dunbar-Ortiz, R. (2014). *An indigenous peoples' history of the United States* (Vol. 3). Beacon Press.
- Dwyer, C. (2019). Tens Of Thousands Of Fires Ravage Brazilian Amazon, Where Deforestation Has Spiked. Aug. 21, 2019. NPR: Latin America. *NPR*.
<<https://www.npr.org/2019/08/21/753140642/tens-of-thousands-of-fires-ravage-brazilian-amazon-where-deforestation-has-spike>>
- Earth Charter Initiative. (2006). *The charter*. Copyright: 2012-2016.
<http://earthcharter.org/invent/images/uploads/echarter_english.pdf>
- (2015). Mission, Vision & Goals.
<<http://earthcharter.org/about-eci/mission-vision-goals/>>
- (2016b). History of the Earth Charter.
<<https://earthcharter.org/discover/history-of-the-earth-charter/>>
- Ebbs, S. (2018). 3 years after Flint, lead is still a public health crisis. October 31, 2018. *ABC News*.
<<https://abcnews.go.com/Health/years-flint-lead-public-health-crisis/story?id=58860151>>
- IMO (2014). Third IMO GHG Study 2014. Executive Summary and Report. *International Maritime Organization*.
<<http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Third%20Greenhouse%20Gas%20Study/GHG3%20Executive%20Summary%20and%20Report.pdf>>
- Eberhard, D. M., Simons, G. F., & Fenning, C. D. (eds). (2019). *Ethnologue: languages of the world, 22nd Ed*. Dallas, Texas: Summer Institute of Linguistics International.
<<https://www.ethnologue.com/ethnoblog/gary-simons/welcome-22nd-edition>>

- (2019b). History of Ethnologue.
<<https://www.ethnologue.com/about/history-ethnologue>>
 - (2019c). Summary by language size.
<<https://www.ethnologue.com/statistics/summary-language-size-18>>
- ECOSOC (United Nations Economic and Social Council). (2005). Permanent Forum on Indigenous Issues: Fourth session. Indigenous children's education and indigenous languages. May 16-27, 2005.
<<https://undocs.org/E/C.19/2005/7>>
- (2016). Report on the fifteenth session. May 9-20, 2016.
<https://www.un.org/en/ga/search/view_doc.asp?symbol=E/2016/43&referer=http://www.un.org/en/documents/index.html&Lang=E>
 - (2017). Report on the sixteenth session. April 24-May 5, 2017.
<<https://undocs.org/en/E/2017/43>>
 - (2018). Permanent Forum on Indigenous Issues: Action plan for organizing the 2019 International Year of Indigenous Languages. February 21, 2018.
<<https://en.iyil2019.org/wp-content/uploads/2018/09/N1804802.pdf>>
- Edwards, A. R. (2005). *The sustainability revolution: Portrait of a paradigm shift*. New Society Publishers.
- Engert, M., Baker, K. J. M., & Warren, T. (2019). Germany Has Frozen Funding For Wildlife Charity WWF Amid Ongoing Human Rights Investigations. July 23, 2019.
<<https://www.buzzfeednews.com/article/marcusengert/germany-has-stopped-funding-wildlife-charity-wwf-amid>>
- (2019b). Leaked report: WWF-backed guards raped pregnant women and tortured villagers at a wildlife park funded by the us government. July 11, 2019. Contributing editors: Maplestone, Z, Mounier, M., & Sergent, C. *Buzzfeed News*.
<<https://www.buzzfeednews.com/article/tomwarren/leaked-report-wwf-backed-guards-raped-pregnant-women>>
- Environment and Ecology. (2018). United Nations Framework Convention on Climate Change.
<<http://environment-ecology.com/climate-change/599-united-nations-framework-convention-on-climate-change.html>>
- Eriksen, T. H., & Nielsen, F. S. (2017). *A history of anthropology*. Pluto Press.
- EPA (Environmental Protection Agency). (2017). Laws and regulations: History of the clean water act. United States Environmental Protection Agency.
<<https://www.epa.gov/laws-regulations/history-clean-water-act>>
- (2018). Basic Information about Coral Reefs.
<<https://www.epa.gov/coral-reefs/basic-information-about-coral-reefs>>
 - (2018b). Criteria for the definition of solid waste and solid and hazardous waste exclusions. July 16, 2018.
<<https://www.epa.gov/hw/criteria-definition-solid-waste-and-solid-and-hazardous-waste-exclusions>>

- (2019). About EPA: About the Office of Policy (OP). Retrieved, October 1, 2019.
<<https://www.epa.gov/aboutepa/about-office-policy-op#main-content>>
- (2019b). Actions You Can Take to Reduce Air Pollution. Region 1: EPA New England.
<<https://www3.epa.gov/region1/airquality/reducepollution.html>>
- (2019c). Greenhouse Gas Emissions: Overview of Greenhouse Gas Emissions.
<<https://www.epa.gov/ghgemissions/overview-greenhouse-gasesf>>
- Eschner, K. (2017). The crazy story of the 1946 Bikini Atoll nuclear tests. June 30, 2017.
Smithsonian.com.
<<https://www.smithsonianmag.com/smart-news/crazy-story-1946-bikini-atoll-nuclear-tests-180963833/>>
- Evershed, N., Ball, A., & Zhou, N. (2020). How big are the fires burning in Australia?
Interactive Map. Jan. 24, 2020. *The Guardian*.
<<https://www.theguardian.com/australia-news/datablog/ng-interactive/2019/dec/07/how-big-are-the-fires-burning-on-the-east-coast-of-australia-interactive-map>>
- Faber, D. J. (Ed.). (1998). *The struggle for ecological democracy: Environmental justice movements in the United States*. Guilford Press.
- Fanon, F. (1970). *Black skin, white masks* (p. 120). London: Paladin.
- Feenberg, A., Kovel, J., Kellner, D., & Alford, C.F. (1992). Commentaries on Marcuse on Ecology. *Capitalism, Nature, Socialism: A Journal of Socialist Ecology*.
<<https://www.marcuse.org/herbert/publications/1970s/1979-ecology-and-critique-of-modern-society.pdf>>
- Ferguson, J. (2006). *Global shadows: Africa in the neoliberal world order*. Duke University Press.
- Forbes-Vierling, S. (2018). Stop Calling it “Cultural Appropriation” and Call it what it is: Colonialism. June 4, 2018. *AfroPunk.com*.
<<https://afropunk.com/2018/06/stop-calling-it-cultural-appropriation-and-call-it-what-it-is-colonialism/>>
- Foucault, M. (1971). Orders of discourse. *Social science information*, 10(2), 7-30.
- (1980). *Power/knowledge: Selected interviews and other writings, 1972-1977*. Pantheon.
- Foulkes, I. (2018). Why did the US leave the UN Human Rights Council? June 20, 2018. *BBC News*.
<<https://www.bbc.com/news/world-us-canada-44552304>>

- FPCC (First Peoples' Cultural Council). (2016). *Language revitalization strategies*. First Peoples' Cultural Council. Victoria, BC:
<http://www.fpcc.ca/language/toolkit/Language_Revitalization_Strategies.aspx>
- Franco, J. L. D. A. (2013). The concept of biodiversity and the history of conservation biology: from wilderness preservation to biodiversity conservation. *História (São Paulo)*, 32(2), 21-48.
- Freire, P. (2004). *Pedagogy of Indignation*. Routledge.
-- (2010). *Pedagogy of the Oppressed*. Continuum.
- Friedrich, J., Ge, M., & Pickens, A. (2017). This interactive chart explains world's top 10 emitters, and how they've changed. *World Resources Institute*.
<<https://www.wri.org/blog/2017/04/interactive-chart-explains-worlds-top-10-emitters-and-how-theyve-changed>>
- Fromm, E. (1956). *The Art of Loving: an Enquiry into the Nature of Love*. Harper.
- Gadgil, M. (1987). Diversity: cultural and biological. *Trends in Ecology & Evolution*, 2(12), 369-373.
- Gadotti, M. (2009). *Education for Sustainability: A Contribution to the Decade of Education for Sustainable Development*. Sao Paulo, Brazil: Editora e Livraria Instituto Paulo Freire.
-- (2000). *Pedagogia da Terra*. Sao Paulo, Brazil: Peiropolis.
- Gadotti, M., & Torres, C. A. (2009). Paulo Freire: education for development. *Development and change*, 40(6), 1255-1267.
- Ganser, L. R. (2019). The Climate Crisis isn't just taking Pacific Islanders' Homes, it's Taking our Identities. Dec. 4, 2019. *Vice.com*.
<https://www.vice.com/en_us/article/43kje3/climate-change-isnt-just-taking-indigenous-pacific-islanders-homes-its-taking-our-identities>
- GAO (U.S. Government Accountability Office). (2018). Lead Testing of School Drinking Water Would Benefit from Improved Federal Guidance. Report to Congressional Requesters: K-12. July, 2018.
<<https://www.gao.gov/assets/700/692979.pdf>>
- Garcia, B., & Lin, J. (2018). The shipping sector is finally on board in the fight against climate change. April 18, 2019. *The Conversation*.
<<https://theconversation.com/the-shipping-sector-is-finally-on-board-in-the-fight-against-climate-change-95212>>
- Geiser, K., & Waneck, G. (1983). PCBs and warren county. *Science for the People*, 15(4), 13-17.

- Global Witness. (2018). Deadliest year on record for land and environmental defenders, as agribusiness is shown to be the industry most linked to killings. July 24, 2018. Global Witness: Press Release.
<<https://www.globalwitness.org/en/press-releases/deadliest-year-record-land-and-environmental-defenders-agribusiness-shown-be-industry-most-linked-killings/>>
- Goldberg, J. (2015). The end of the line: Rehabilitation and reform in Angola Penitentiary. Sept. 9, 2015. *The Atlantic*.
<<https://www.theatlantic.com/politics/archive/2015/09/a-look-inside-angola-prison/404377/>>
- González-Gaudiano, E. (2005). Education for Sustainable Development: configuration and meaning. *Policy futures in education*, 3(3), 243-250.
- Gordon-Chipembere, N. (Ed.). (2011). *Representation and black womanhood: the legacy of Sarah Baartman*. Springer.
- Gould, E., & Shierholz, H. (2020). Not everybody can work from home: Black and Hispanic workers are much less likely to be able to telework. March 19, 2020. *Economic Policy Institute*.
<<https://www.epi.org/blog/black-and-hispanic-workers-are-much-less-likely-to-be-able-to-work-from-home/>>
- Grande, S. (2015). *Red pedagogy: Native American social and political thought*. Rowman & Littlefield.
- Grossman, K. (2018). TigerSwan at Standing Rock: Ethics of Private Military Use Against an Environmental-Justice Movement. *Case Studies in the Environment*.
- Gruenewald, D. A. (2004). A Foucauldian Analysis of Environmental Education: Toward the Socioecological Challenge of the Earth Charter. *Curriculum Inquiry* 34(1): 71–107.
- Guajajara, S. (2019). “Araribóia territory loses another Forest Guardian for defending our territory. Paulino Guajajajra was killed today in an ambush by a logger. It's time to stop this institutionalized genocide! Stop authorizing the bloodshed of our people!” Translated via *Google Translate*. Retrieved November 14, 2019. *Twitter*: @GuajajaraSonia..
<<https://twitter.com/guajajarasonia?lang=en>>
- Guana, E. (1995). Federal environmental citizen provisions: obstacles and incentives on the road to environmental justice. *Ecology LQ*, 22, 1.
<<https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1504&context=elq>>
- Guevara, E. (2002). *Global justice: Liberation and socialism*. Ocean Press.

- Gustafson, J. L. (2008). Tokenism in policing: An empirical test of Kanter's hypothesis. *Journal of criminal justice*, 36(1), 1-10.
- Gutierrez, F., & Prado, C. (1999). *Ecopedagogia e Cidadania Planetaria*. Sao Paulo, Brazil: Cortez.
- Hadhazy, A. (2009). Years After the Exxon Valdez: Preventing-and Preparing For-the Next Oil Spill Disaster. *Scientific American*. (March 23, 2009).
<<https://www.scientificamerican.com/article/exxon-valdez-20-years-later-oil-spill-prevention/>>
- Hall, S. (1997). The work of representation. *Representation: Cultural representations and signifying practices*, 2, 13-74.
- Hallowell, A. I. (1960). Ojibwa Ontology, Behavior, and World View. *Culture in History: Essays in Honor of Paul Rand*, Columbia University Press, New York, 49-82.
- Harmon, D. (1995). The status of the world's languages. *Ethnologue. Southwest Journal of Linguistics* 14: I-33.
- (2002). In Light of Our Differences: How Diversity in Nature and Culture Makes Us Human. Washington, DC: Smithsonian Inst. Press
- Harmon, D., & Loh, J. (2010). The index of linguistic diversity: A new quantitative measure of trends in the status of the world's languages. *Language Documentation & Conservation*, 4.
- Harney, S. & Moten, F. (2013). The Undercommons: Fugitive Planning and Black Study. *New York: Minor Compositions*.
- Harris, C. (1993). Whiteness as property. *Harvard Law Review*, 106 (8), 1707-1791.
- Hartman, S. (2008). *Lose your mother: A journey along the Atlantic slave route*. Macmillan.
- Haseman, J., Zaiets, K., & Thorson, M. (2020). Tracking protests across the USA in the wake of George Floyd's death. June 5, 2020. *USA Today*.
<<https://www.usatoday.com/in-depth/graphics/2020/06/03/map-protests-wake-george-floyds-death/5310149002/>>
- Hazen, E. L., Suryan, R. M., Santora, J. A., Bograd, S. J., Watanuki, Y., & Wilson, R. P. (2013). Scales and mechanisms of marine hotspot formation. *Marine Ecology Progress Series*, 487, 177-183.
- HDR (UN Human Development Report). (2004). UN Human Development Report: Cultural liberty in today's diverse world. Carfax Publishing, Taylor and Francis Inc.
<<http://hdr.undp.org/en/content/human-development-report-2004>>

- Heckenberger, M.J., J.C. Russell, J.R. Toney and M.J. Schmidt. (2007). The legacy of cultural landscapes in the Brazilian Amazon: Implications for biodiversity. *Philosophical Transactions of the Royal Society B* 362: 197-208
- Hedges, C. (2009). *Empire of illusion: The end of literacy and the triumph of spectacle*. Nation Books.
- Helmick, A. (2017). Hundreds of the firefighters battling Sonoma fires – Inmates. Oct. 13, 2017. *KQED*.
<<https://www.kqed.org/news/11623289/hundreds-of-the-firefighters-battling-sonoma-fires-inmates>>
- Henn, J. (2017). ExxonMobil Takes the Olympic Gold in Deceitful Advertising. *Huff Post*. Aug. 9, 2016. Updated Aug. 10, 2017.
<<https://www.scientificamerican.com/article/exxon-valdez-20-years-later-oil-spill-prevention/>>
- Heron, J., & Reason, P. (1997). A participatory inquiry paradigm. *Qualitative inquiry*, 3(3), 274-294.
- Hersher, R. (2019). U.S. Formally Begins to Leave the Paris Climate Agreement. Nov. 4, 2019. *NPR*.
<<https://www.npr.org/2019/11/04/773474657/u-s-formally-begins-to-leave-the-paris-climate-agreement>>
- Hinton, L. (2001). Language revitalization: An overview. *The green book of language revitalization in practice*, 3-18.
- Hobday, A. J., & Pecl, G. T. (2014). Identification of global marine hotspots: sentinels for change and vanguards for adaptation action. *Reviews in Fish Biology and Fisheries*, 24(2), 415-425.
- Hoekstra, J. M., Boucher, T. M., Ricketts, T. H., & Roberts, C. (2005). Confronting a biome crisis: global disparities of habitat loss and protection. *Ecology letters*, 8 (1), 23-29.
- Hoffman, K. M., Trawalter, S., Axt, J. R., & Oliver, M. N. (2016). Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proceedings of the National Academy of Sciences*, 113(16), 4296-4301.
- hooks, b. (1994). “Love as the Practice of Freedom.” *Outlaw Culture: Resisting Representations*. New York: Routledge.
- (2000). *All About Love: New Visions*. Harper Perennial.

- (2010). *Teaching critical thinking: Practical wisdom*. Routledge.
- Hong, S. K., Bogaert, J., & Min, Q. (2014). *Biocultural landscapes*. Springer-Verlag, Dordrecht, The Netherlands.
- Horowitz, J. (2019). Italy's students will get a lesson in climate change. Many lessons, in fact. Nov. 5, 2019. *The New York Times: Europe*.
<<https://www.nytimes.com/2019/11/05/world/europe/italy-schools-climate-change.html>>
- Hughes, T.P., Kerry, J.T., Álvarez-Noriega, M., Álvarez-Romero, J.G., Anderson, K.D., Baird, A.H., Babcock, R.C., Beger, M., Bellwood, D.R., Berkelmans, R. and Bridge, T.C. (2017). Global warming and recurrent mass bleaching of corals. *Nature*, 543(7645), 373.
<<https://www.nature.com/articles/nature21707>>
- Hughes, T. P., Kerry, J. T., Baird, A. H., Connolly, S. R., Dietzel, A., Eakin, C. M., ... & McWilliam, M. J. (2018). Global warming transforms coral reef assemblages. *Nature*, 556(7702), 492.
<<https://www.nature.com/articles/s41586-018-0041-2>>
- Hulme, D. (2009). *The millennium development goals (MDGs): A short history of the world's biggest promise*. Manchester, Brooks World Poverty Institute. Working Paper No. 100.
<<https://www.unidev.info/Portals/0/pdf/bwpi-wp-10009.pdf>>.
- (2010). Lessons from the Making of the MDGs: Human Development Meets Results-based Management in an Unfair World. *IDS Bulletin*, 41(1), 15-25.
<<https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1759-5436.2010.00099.x>>
- Hulme, D., & Scott, J. (2010). The political economy of the MDGs: Retrospect and prospect for the world's biggest promise. *New Political Economy*, 15(2), 293-306.
- IEA (International Energy Agency). (2019). *Global Energy & CO2 Report: The latest trends in energy and emissions in 2018*.
<https://webstore.iea.org/download/direct/2461?fileName=Global_Energy_and_CO2_Status_Report_2018.pdf>
- (2019b). IEA Atlas of Energy.
<<http://energyatlas.iea.org/#!/tellmap/1378539487>>
- Illich, I. (1970). *Deschooling Society*. New York and London: Marion Boyars.

- ILO (International Labour Office). (2017). Global estimates of modern slavery: forced labour and forced marriage. Geneva, 2017.
<https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/publication/wcms_575479.pdf>
- INDEPAZ (Institute for Development and Peace Studies). (2019). Informe parcial Julio 26, 2019. July 23, 2019.
<<http://www.indepaz.org.co/wp-content/uploads/2019/07/Informe-parcial-Julio-26-2019.pdf>>
- Ingold, T. (2006). Rethinking the animate, re-animating thought. *Ethnos*, 71(1), 9-20.
- INPE (Instituto Nacional de Pesquisas Espaciais (2019). INPE: Situação Atual.
<<http://queimadas.dgi.inpe.br/queimadas/portal-static/situacao-atual/>>
- IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services). (2018): The IPBES regional assessment report on biodiversity and ecosystem services for the Americas. Rice, J., Seixas, C. S., Zaccagnini, M. E., Bedoya-Gaitán, M., and Valderrama N. (Eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 656 pages.
<https://www.ipbes.net/system/tdf/2018_americas_full_report_book_v5_pages_0.pdf?file=1&type=node&id=29404>
- IPCC (Intergovernmental Panel on Climate Change). (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland.
- (2018). Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments. Retrieved February 20, 2019.
<<https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/>>
- (2019). History of IPCC. Retrieved Sept. 11, 2019.
<<https://www.ipcc.ch/about/history/>>
- IRSN (Institut de Radioprotection et de Sûreté Nucléaire). (2016). Environmental impact in 2016 of the Fukushima Daiichi accident.
<<https://www.irsn.fr/EN/publications/thematic-safety/fukushima/fukushima-2016/Pages/Fukushima-in-2016-environmental-impact.aspx>>
- ISE (International Society of Ethnobiology). (2019). First ISE Conference. Retrieved: August 31, 2018. <http://www.ethnobiology.net/year-end-campaign/first-ise-congress/>
- IUCN (International Union for Conservation of Nature). (1991). UNEP 1991. *Caring for the Earth: a Strategy for Sustainable Living*.

- (1997). *Indigenous peoples and sustainability: cases and actions*. [Gland, Switzerland?]: IUCN Indigenous Peoples and Conservation Initiative.
- (2020). The IUCN Red List of Threatened Species. Version 2020-1. <<https://www.iucnredlist.org/>>
- IYIL (International Year of Indigenous Languages). (2018). Indigenous Languages. International Year of Indigenous Languages. UNESCO. <<https://en.iyil2019.org/>>
- Jacobs, M. (1999). Sustainable development as a contested concept. In 'Fairness and Futurity: Essays on Environmental Sustainability and Social Justice'. (Ed. M. Dobson.) Oxford Scholarship Online.
- Jepson, P., & Canney, S. (2001). Biodiversity hotspots: hot for what? *Global Ecology and Biogeography*, 10(3), 225-227.
- Jerving, S., Jennings, K., Hirsch, M., & Rust, S. (2015). What Exxon knew about the Earth's melting Arctic. *Los Angeles Times*, 9. <<http://graphics.latimes.com/exxon-arctic/>>
- Jones, B.L., & Jones, J.S. (2020). Gov. Cuomo is wrong, covid-19 is anything but an equalizer: The pandemic will strike the poor harder around the globe. April 5, 2020. *The Washington Post*. <<https://www.washingtonpost.com/outlook/2020/04/05/gov-cuomo-is-wrong-covid-19-is-anything-an-equalizer/>>
- Josie, P., & Hong, J. (2019). My Community is Warming Three Times Faster than the Rest of the World. Oct. 3, 2019. *Vice*. <https://www.vice.com/en_ca/article/wjwp5q/my-community-is-warming-three-times-faster-than-the-rest-of-the-world>
- Kahn, R. (2008). Towards ecopedagogy: Weaving a broad-based pedagogy of liberation for animals, nature, and the oppressed people of the earth. *The critical pedagogy reader*, 2.
- (2010). *Critical pedagogy, ecoliteracy, & planetary crisis: The ecopedagogy movement* (Vol. 359). Peter Lang.
- (2016). A Movement for Ecopedagogy: Some Thoughts on the Work Today. *Tijdschrift Voor Orthopedagogiek*: 55 (juli/agustus 2016) Nr. 7/8, 349-357.
- Kann, D. (2019). 5 facts behind America's high incarceration rate. *CNN*. April 21, 2019. <<https://www.cnn.com/2018/06/28/us/mass-incarceration-five-key-facts/index.html>>
- Kanter, R. M. (2008). *Men and women of the corporation: New edition*. Basic books.

- Kashgary, A. D. (2011). The paradox of translating the untranslatable: Equivalence vs. non-equivalence in translating from Arabic into English. *Journal of King Saud University-Languages and Translation*, 23(1), 47-57.
- Kassam, K. A. S. (2009). *BCD and indigenous ways of knowing: human ecology in the Arctic*. University of Calgary Press.
- Kaye, F.W. (2011). *Goodlands: a meditation and history on the Great Plains*. Athabasca University Press.
- Keating, M. (1992). The Earth Summits agenda for change: a plain language version of Agenda 21 and the other Rio agreements. *Earth Summit Times*. Center for Our Common Future.
- Kellner, D. (1992). Marcuse, liberation, and radical ecology. *Capitalism, Nature, Socialism*, 3(3), 43-46.
- (1995). *Media culture: Cultural studies, identity and politics between the modern and the post-modern*. Routledge.
- (2004). *The New Left and the 1960s: Collected Papers of Herbert Marcuse, Volume 3*.
- (2009). *Marcuse's challenge to education*. Rowman & Littlefield Publishers.
- (2011). Cultural studies, multiculturalism, and media culture in *Gender, race, and class in media: A critical reader*. Sage.
- Kellner, D., Lewis, T. E., & Pierce, C. (2008). *On Marcuse: Critique, liberation, and reschooling in the radical pedagogy of Herbert Marcuse*. Brill Sense.
- Kennedy, M. (2016). Lead-laced water in Flint: A step-by-step look at the makings of a crisis. *National Public Radio*.
<<https://www.npr.org/sections/thetwo-way/2016/04/20/465545378/lead-laced-water-in-flint-a-step-by-step-look-at-the-makings-of-a-crisis>>
- Key, C. (2012). "Why Are We Here? One Occupier's Answer." *Occupy.com*. Retrieved April 5, 2012.
<http://occupy.com/article/why-are-we-here-one-occupiers-answer?qt-article_tabs=3>
- Khan, S. (2014). Towards sustainability: managing integrated issues of the brown and the green agenda in water governance and hazard mitigation. *Chance 2 Sustain. Policy Brief 12*.
<http://www.chance2sustain.eu/fileadmin/Website/Dokumente/Dokumente/Publications/D4.57_Policy_Brief_pdf>
- King Jr., M. L. (1960). *Pilgrimage to Nonviolence in The Sixties Papers: Documents of a Rebellious Decade* (1984). Albert, J.C., & Albert, S. E. (Eds.). Praeger Publishers.

- (1956). *The Papers of Martin Luther King, Jr., Volume V: Threshold of a New Decade, January 1959 December 1960* (Vol. 5). (1992). Carson, C., Luker, R. E., Holloran, P., & Russell, P. A. (Eds). University of California Press.
- Kimmerer, R. W. (2013). *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants*. Milkweed Editions.
- Klein, N. (2007). *The shock doctrine: The rise of disaster capitalism*. Macmillan.
- Knowles, H. (2019). Keystone Pipeline leaks 383,000 gallons of oil in second big spill in two years. The Washington Post: Climate and Environment. November 1, 2019. *The Washington Post*. <<https://www.washingtonpost.com/climate-environment/2019/10/31/keystone-pipeline-leaks-gallons-oil-second-big-spill-two-years/>>
- Koch, A., Brierley, C., Maslin, M. M., & Lewis, S. L. (2019). Earth system impacts of the European arrival and Great Dying in the Americas after 1492. *Quaternary Science Reviews*, 207, 13-36.
<<https://www.sciencedirect.com/science/article/pii/S0277379118307261>>
- Kolbert, E. (2014). *The sixth extinction: An unnatural history*. A&C Black.
- Koran, L. (2018). US leaving UN Human Rights Council – ‘a cesspool of political bias’. June 20, 2018. *CNN*.
<<https://www.cnn.com/2018/06/19/politics/haley-pompeo-human-rights-bias/index.html>>
- Krauss, M. (1992). The world’s languages in crisis. *Language*, 68 (1), 4-10.
- Kroeber, A. L., & Kluckhohn, C. (1952). Culture: A critical review of concepts and definitions. *Papers. Peabody Museum of Archaeology & Ethnology, Harvard University*.
- Kurmanaey, A. (2019). Military Calls on President to Step Down After Election Dispute in Bolivia. Nov. 10, 2019. *The New York Times*.
<<https://www.nytimes.com/2019/11/10/world/americas/bolivia-election-evo-morales.html>>
- (2019b). In Bolivia, Interim Leader Sets Conservative, Religious Tone. Nov. 16, 2019. *The New York Times*.
<<https://www.nytimes.com/2019/11/16/world/americas/bolivia-anez-morales.html>>
- La Viña, A., Hoff, G., & DeRose, A. (2002). The Outcomes of Johannesburg: Assessing the World Summit on Sustainable Development. *SAIS Review* (23/1), 53-7-. Johns Hopkins University Press.
<<https://muse.jhu.edu/article/40128/pdf>>
- LaDuke, W. (2017). *All our relations: Native struggles for land and life*. Haymarket Books.

- Larnaud, N. (2019). World leaders “disappointed” in results of climate talks after little achieved during 12-day COP25 event. Dec. 16, 2019. *CBS News*.
<<https://www.cbsnews.com/news/cop25-climate-change-talks-ended-but-main-issues-went-unresolved/>>
- Larrain, S. (2001). The Dignity Line as an Indicator of Socioenvironmental Sustainability: Advances from the Concept of Minimum Life towards the Concept of a Dignified Life. *Instituto de Politica Ecologica. Santiago*.
- Larrain S., Leroy, J.P., & Nansen, K. (2003). Citizen Contribution to the Construction of Sustainable Societies.
<<http://www.chilesustentable.net/wp-content/uploads/2011/06/Comercio-Conosur-en-Ingles.pdf>>
- Lavelle, M., & Coyle, M. (1992). Unequal protection: the racial divide in environmental law. *National Law Journal*, 15(3), S1-S12.
- Layton, A. (2019). Angola Prison and the ethics of prison labor. Jan. 29, 2019. *The Prindle Post*.
<<https://www.prindlepost.org/2019/01/angola-prison-ethics-prison-labor/>>
- Lazarus. R. J. (2000). Environmental Racism – That’s What It Is. Georgetown Law Faculty Publications. *U. Ill. L. Rev.*, 255.
- LD&C (Language Documentation & Conservation). (2019). About LD&C. University of Hawai’i Press.
<<http://nflrc.hawaii.edu/lcd/about-lcd/>>
- Leakey, R., & Lewin, R. (1995). The sixth extinction. *Weidenfeld and Nicolson, London*.
- Lee, F. R. (2003). Academic Industrial Complex. Sept. 6, 2003. *New York Times*.
<<https://www.nytimes.com/2003/09/06/arts/academic-industrial-complex.html>>
- Lee, S. (2020). “WE. DO. NOT. HAVE. TO. PEACEFULLY. PROTEST. OUR. OWN. GENOCIDE.” May 27, 2020. *Twitter: @simaleebg*.
<<https://twitter.com/simaleebg/status/1265839090144075777>>
- Leonard, W. (2007). *Miami language reclamation in the home: A case study (Doctoral Dissertation)*. University of California, Berkeley.
<<https://escholarship.org/uc/item/1c4779gb>>
- Leonard, P., & McLaren, P. (2002). *Paulo Freire: A critical encounter*. Routledge.
- Lewis, M. P., & Simons, G. F. (2010). Assessing endangerment: expanding Fishman’s GIDS. *Revue roumaine de linguistique*, 55(2), 103-120.

- Living Tongues. (2019). Bringing the voices to the future: *Assisting indigenous communities in their struggle for cultural and linguistic survival*. Living Tongues Institute for Endangered Languages.
<<https://livingtongues.org/our-mission/>>
- Londoño, E. (2019). A Year After Her Killing, Marielle Franco Has Become a Rallying Cry in a Polarized Brazil. March 14, 2019. *The New York Times*.
<<https://www.nytimes.com/2019/03/14/world/americas/marielle-year-death.html>>
- Longo, F. (2018). Congo Republic: Baka “Pygmies” beaten up and arrested. March 8, 2018.
<<https://www.survivalinternational.org/news/11935>>
- (2018b). The world’s largest conservation group is complicity in human rights abuses and illegal land theft. Nov. 9, 2018. *Survival International* via Medium.com.
<https://medium.com/@jif_86730/if-this-is-a-park-a082a468bb6a>
- (2018c). Letters implicate WWF in illegal land grab and human rights abuses. Dec. 20, 2018. *Survival International*.
<<https://www.survivalinternational.org/news/12058>>
- Lopes, M. (2019). Why Brazilian farmers are burning the rainforest – and why it’s so hard for Bolsonaro to stop them. Sept. 8, 2019. *The Washington Post*.
<https://beta.washingtonpost.com/world/the_americas/why-brazilian-farmers-are-burning-the-rainforest--and-why-its-difficult-for-bolsonaro-to-stop-them/2019/09/05/3be5fb92-ca72-11e9-9615-8f1a32962e04_story.html>
- Lorde, A. (1977). The transformation of silence into language and action. *Identity politics in the women’s movement*, 81-84.
- Lu, C., Warchol, K. M., & Callahan, R. A. (2014). Sub-lethal exposure to neonicotinoids impaired honey bees winterization before proceeding to colony collapse disorder. *Bulletin of Insectology*, 67(1), 125-130.
- Lynch, T. (2014). “Nothing but land”: Women’s Narratives, Gardens, and the Settler-Colonial Imaginary in the US West and Australian Outback. *Western American Literature*, 48(4), 374-399.
- Mackintosh, E. (2019). The Amazon is burning because the world eats so much meat. Aug. 23, 2019. *CNN*.
<<https://www.cnn.com/2019/08/23/americas/brazil-beef-amazon-rainforest-fire-intl/index.html>>
- Macy, J. (2013). The Greening of Self in *Spiritual Ecology: The Cry of the Earth*. Vaughan-Lee (Ed). The Golden Sufi Center.
- Maffi, L. (1998). Language: a resource for nature. *Nature and Resources*, 34(4), 12-21.

- (2001). On biocultural diversity: linking language, knowledge, and the environment. *Smithsonian Institute*.
- (2005). Linguistic, cultural, and biological diversity. *Annu. Rev. Anthropol.*, 34, 599-617.
- (2007). BCD and sustainability. *The Sage handbook of environment and society*, 267-277.
- Maffi, L., & Woodley, E. (2010) Biocultural diversity conservation: a global sourcebook. *Earthscan*.
- Magga, O. H., Nicolaisen, I., Trask, M., Dunbar, R., & Skutnabb-Kangas, T. (2005). Indigenous children's education and indigenous languages. In *Expert paper written for the United Nations Permanent Forum on Indigenous Issues* (p. 144).
- Maldonado-Torres, N. (2007). On the Coloniality of Being: Contributions to the Development of a Concept. *Cultural studies*, 21(2-3), 240-270.
- Marchese, C. (2015). Biodiversity hotspots: A shortcut for a more complicated concept. *Global Ecology and Conservation*, 3, 297-309.
- Martin, R. (2020). Navajo Nation President Says COVID-19 Has Killed 103. March 13, 2020. *NPR*.
<<https://www.npr.org/sections/coronavirus-live-updates/2020/05/13/855419230/navajo-nation-president-says-covid-19-has-killed-103>>
- Massey, R. (2004). Environmental justice: income, race, and health. *Global Development and Environment Institute*.
- Marx, K. (1845). Eleven Theses on Feuerbach. *Marx-Engel Internet Archive*. Retrieved 2017.
<<http://www.marxists.org/archive/marx/works/1845/theses/>>
- McAdam, D. (1985). *Political process and the development of black insurgency, 1930-1970*. University of Chicago Press.
- McCarty, T. L., & Chen, R. Linguistic Diversity. Last Modified: September 29, 2014. Last Reviewed: April 28, 2017. *Oxford Bibliographies*.
<<https://www.oxfordbibliographies.com/view/document/obo-9780199756810/obo-9780199756810-0116.xml>>
- McCarty, T. L., & Nichols, S. E. (2014). Reclaiming Indigenous languages: A reconsideration of the roles and responsibilities of schools. *Review of Research in Education*, 38(1), 106-136.

- McCarty, T. L., Romero-Little, M. E., Warhol, L., & Zepeda, O. (2011). Critical ethnography and indigenous language survival: Some new directions in language policy research and praxis. *Ethnography and language policy*, 31-51.
- McCoy, T. (2019). As loggers destroy the Amazon, this ‘guardian’ stood in their way. Now he’s been killed. November 4, 2019. The Washington Post: The Americas. *The Washington Post*.
<https://www.washingtonpost.com/world/this-indigenous-amazon-forest-guard-long-feared-a-violent-death-it-finally-arrived/2019/11/04/1e6c358e-fe5e-11e9-8341-cc3dce52e7de_story.html>
- McGranahan, G., & Satterthwaite, D. (2000). Environmental health or ecological sustainability? Reconciling the brown and green agendas in urban development. *Sustainable cities in developing countries*, 73-90.
(GRAPH)
- McGrath, M. (2019). COP25: Longest climate talks end with compromise deal. Dec. 15, 2019. *BBC News*. <<https://www.bbc.com/news/science-environment-50799905>>
- McLeman, R. A., Dupre, J., Ford, L. B., Ford, J., Gajewski, K., & Marchildon, G. (2014). What we learned from the Dust Bowl: lessons in science, policy, and adaptation. *Population and environment*, 35(4), 417-440.
- MEA (Millennium Ecosystem Assessment). (2005). *Current state and trends. Vol. 1: Ecosystems and well-being*. Millennium Ecosystem Assessment. London: Island Press.
<<https://unstats.un.org/unsd/mi/pdf/MDG%20Book.pdf>>
- MEC (Michigan Environmental Council). (2011). When our rivers caught fire. July 11, 2011.
<https://www.environmentalcouncil.org/when_our_rivers_caught_fire>
- Meadows, D. H., Meadows, D. H., Randers, J., & Behrens III, W. W. (1972). The limits to growth: a report to the club of Rome (1972). *Google Scholar*, 91.
- Merchant, C. (1989). *Ecological revolutions: nature, gender, and science in New England*. University of North Carolina Press.
- Meredith, S. (2019). ‘The lungs of the Earth are in flames’: Brazil faces global backlash over Amazon fires. Aug. 23, 2019. CNBC: World News. *CNBC*.
<<https://www.cnbc.com/2019/08/23/amazon-fires-brazils-bolsonaro-faces-backlash-from-world-leaders.html>>

- Meyer, R. (2019). The Indoor Man in the White House: In withdrawing the United States from the historic Paris Agreement, Donald Trump rewrote the future of the Earth's climate. January 13, 2019. *The Atlantic*.
<<https://www.theatlantic.com/politics/archive/2019/01/trump-withdraws-paris-agreement/579733/>>
- Mezzofiore, G. (2019). Italy to become first country to make learning about climate change compulsory for school students. Updated: Nov. 6, 2019. *CNN*.
<<https://www.cnn.com/2019/11/06/europe/italy-climate-change-school-intl-scli-scn/index.html>>
- Middleton, N., & O'Keefe, P. (2001). *Redefining sustainable development*. London: Pluto Press.
- Milton, K. (1998). Nature and the environment in indigenous and traditional cultures. In: *Spirit of the environment: Religion, value and environmental concern*. (eds. Cooper, D.E. and J.A. Palmer). Pp. 86-99. London and New York: Routledge.
- (1999). Nature is already sacred. *Environmental Values* 8: 437-449.
- Mikati, I., Benson, A. F., Luben, T. J., Sacks, J. D., & Richmond-Bryant, J. (2018). Disparities in distribution of particulate matter emission sources by race and poverty status. *American journal of public health, 108*(4), 480-485.
<<https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2017.304297>>
- Mittermeier, R. A., Turner, W. R., Larsen, F. W., Brooks, T. M., & Gascon, C. (2011). Global biodiversity conservation: the critical role of hotspots. In *Biodiversity hotspots* (pp. 3-22). Springer, Berlin, Heidelberg.
- Moore, Queen M. A. (1973). The Black Scholar Interviews: Queen Mother Moore. *The Black Scholar* (Vol. 4, No. 6/7, *Black Women's Liberation* (March-April 1973), pp. 47-55). Taylor & Francis.
- Moore, R. E., Pietikäinen, S., & Blommaert, J. (2010). Counting the losses: Numbers as the language of language endangerment. *Sociolinguistic studies, 4*(1), 1-26.
- Mora, C., Tittensor, D. P., Adl, S., Simpson, A. G., & Worm, B. (2011). How many species are there on Earth and in the ocean? *PLoS biology, 9*(8), e1001127.
- Morrison, D. S. (2009). Rallying Point: Charles Lee's Longstanding Career in Public Health. *American journal of public health, 99*(S3), S508-S510.
<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2774201/>>
- Morrison, K. M. (2014). Animism and a proposal for a post-Cartesian anthropology. *The Handbook of Contemporary Animism*. Harvey, G. (Ed). Routledge.

- Moseley, C. (2010). *Atlas of the World's Languages in Danger*, 3rd ed. Paris, UNESCO Publishing.
 <<http://www.unesco.org/new/en/culture/themes/endangered-languages/atlas-of-languages-in-danger/>>
- Mottet, A., & Steinfeld, H. (2018). Cars or livestock: which contribute more to climate change? Sept 18, 2018. Food and Agriculture Organization (FAO). *Thomson Reuters Foundation News: Food*.
 <<http://news.trust.org/item/20180918083629-d2wf0>>
- Muldoon, K. (2014). From frog massacre to frog rescue: Oregonians rush to help when migration meets traffic. March 31, 2014. *The Oregonian*.
 <https://www.oregonlive.com/environment/2014/03/from_frog_massacre_to_frog_res.html>
- Myers, N. (1988). Threatened biotas: "hot spots" in tropical forests. *Environmentalist*, 8(3), 187-208.
- Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A., & Kent, J. (2000). Biodiversity hotspots for conservation priorities. *Nature*, 403(6772), 853.
- Myklebust, J. P. (2019). Unprecedented moves by universities to tackle UN SDGs. June 29, 2019. *University World News: The Global Window on Higher Education*.
 <<https://www.universityworldnews.com/post.php?story=20190628113242102>>
- Nabhan, G. P., Pynes, P., & Joe, T. (2002). Safeguarding species, languages, and cultures in the time of diversity loss: from the Colorado Plateau to global hotspots. *Annals of the Missouri Botanical Garden*, 164-175.
- Næss, A. (2005). *The selected works of Arne Naess* (Vol. 1). Springer Science & Business Media.
- Nagle, R. (2019). The Indigenous teen who confronted Trudeau about unsafe water took on the UN. Oct. 1, 2019. *Vice: Environment*. *Vice.com*
 <https://www.vice.com/en_us/article/8xwvx3/the-indigenous-teen-who-confronted-trudeau-about-unsafe-water-took-on-the-un>
- NASA (National Aeronautics and Space Administration). (2019). Scientific consensus: Earth's climate is warming. Global climate change: Vital signs of the planet. Site last updated: Sept. 23, 2019.
 <<https://climate.nasa.gov/scientific-consensus/>>
- (2019b). The effects of climate change. Site last updated: Aug. 28, 2019.
 <<https://climate.nasa.gov/effects/>>

- (2019c). Uptick in Amazon Fire Activity. August 2019. *NASA Earth Observatory*.
<<https://earthobservatory.nasa.gov/images/145498/uptick-in-amazon-fire-activity-in-2019>>
- NCA (National Climate Assessment). (2018). Fourth National Climate Assessment. Volume II: Impacts, Risks, and Adaptation in the United States. U.S. Global Change Research Program.
<<https://nca2018.globalchange.gov/>>
- (2014). 2014 National Climate Assessment. Our Changing Climate: Key messages. U.S. Global Change Research Program.
<<https://nca2014.globalchange.gov/highlights/overview/climate-trends>>
- Neeman, N., Servis, J. A., & Naro-Maciél, E. (2015). Conservation Issues: Oceanic Ecosystems.
- Nelson, A. (2018). 4 Environmental Activists Are Killed Every Week So We Can Have Snacks, Meat And Coffee. July 24, 2018. *HuffPost*.
<huffpost.com/entry/environmental-activists-killed-every-week_n_5b55ed2be4b0de86f48f2fb6>
- Nelson, G. C., Bennett E., Berhe, A. A., Cassman, K., DeFries, R., Dietz, T., Dobermann, A., Dobson, A., Janetos, A., Levy, M., Marco, D., Nakicenovic, N., O'Neill, B., Norgaard, R., Petschel-Held, G., Ojima, D., Pingali, P., Watson, R., & Monika Zurek. (2006). Anthropogenic drivers of ecosystem change: an overview. *Ecology and Society*, 11(2): 29.
<<http://www.ecologyandsociety.org/vol11/iss2/art29/>>
- Nettle, D. (1999). *Linguistic diversity*. Oxford: Oxford Univ. Press.
- Newman, R. (2001). Making environmental politics: women and love canal activism. *Women's Studies Quarterly*, 29(1/2), 65-84.
- Niedenthal, J. (2002). Paradise lost—'for the good of mankind'. *The Guardian*.
<<https://www.theguardian.com/travel/2002/aug/06/travelnews.nuclearindustry.environment>>
- Nieto, C. C. (1997). Toward a holistic approach to the ideal of sustainability. *Techné: Research in Philosophy and Technology*, 2(2), 79-83.
- Niheu, K. A. (2019). Indigenous resistance in an era of climate change crisis. *Radical History Review*, 2019(133), 117-129.
<<https://read.dukeupress.edu/radical-history-review/article-abstract/2019/133/117/137328/Indigenous-Resistance-in-an-Era-of-Climate-Change>>

- Nix, J. (2017). Burger King Linked to a Whopping Million-Plus Acres of Deforestation. March 20, 2017. *Sierra*.
<<https://www.sierraclub.org/sierra/green-life/burger-king-linked-whopping-million-plus-acres-deforestation>>
- NOAA (National Oceanic and Atmospheric Administration). (2019). What Is Ocean Exploration and Why Is It Important? Ocean Exploration and Research. Retrieved: March 1, 2019.
<<https://oceanexplorer.noaa.gov/backmatter/whatisexploration.html>>
- 2019b. State of the Climate: Global Climate Report for June 2019. Published: July 2019. Retrieved: September 3, 2019.
<<https://www.ncdc.noaa.gov/sotc/global/201906>>
- 2019c. NOAA. July 2019 was hottest month on record for the planet: Polar sea ice melted to record lows. August 15, 2019. Retrieved: September 27, 2019.
<<https://www.noaa.gov/news/july-2019-was-hottest-month-on-record-for-planet>>
- NRDC (Natural Resources Defense Council). (2015). The story of silent spring: How a courageous woman took on the chemical industry and raised important questions about humankind's impact on nature. August 13, 2015.
<<https://www.nrdc.org/stories/story-silent-spring>>
- (2019). What's at stake: Fighting for safe drinking water in Flint, Michigan.
<<https://www.nrdc.org/flint>>
- NYT (*New York Times*). (1982). 30 More PCB Protesters Arrested in Carolina. September 18, 1982.
<<https://www.nytimes.com/1982/09/18/us/30-more-pcb-protesters-arrested-in-carolina.html>>
- Oates, J. F. (1999). *Myth and reality in the rain forest: how conservation strategies are failing in West Africa*. Univ of California Press.
- Oceana (2019). Shipping Pollution.
<<https://eu.oceana.org/en/shipping-pollution-1>>
- OECD (Organisation for Economic Co-operation and Development). (2018). Data: Air and GHG emissions.
<<https://data.oecd.org/air/air-and-ghg-emissions.htm>>
- OEHHA (Office of Environmental Health Hazard Assessment). (2019). Analysis of Refinery Chemical Emissions and Health Effects. OEHHA and California EPA. March 2019.
<<https://oehha.ca.gov/media/downloads/faqs/refinerychemicalsreport032019.pdf>>
- Olmer, N., Comer, B., Roy, B., Mao, X., & Rutherford, D. (2017). *Greenhouse Gas Emissions from Global Shipping, 2013–2015*. October 2017. The International Council on Clean Transportation (ICCT)
<https://theicct.org/sites/default/files/publications/Global-shipping-GHG-emissions-2013-2015_ICCT-Report_17102017_vF.pdf>

- Orme, C. D. L., Davies, R. G., Burgess, M., Eigenbrod, F., Pickup, N., Olson, V. A., Webster, A. J., Ding, T., Rasmussen, P. C., Ridgely, R. S., Stattersfield, A. J., Bennett, P. M., Blackburn, T. M., Gaston, K. J. & Stattersfield, A. J. (2005). Global hotspots of species richness are not congruent with endemism or threat. *Nature*, 436(7053), 1016.
- Orr, D. W. (2009). *Down to the wire: Confronting climate collapse*. Oxford University Press.
- Oviedo, G., Larsen, P. B., & Maffi, L. (2000). *Indigenous and traditional peoples of the world and ecoregion conservation: An integrated approach to conserving the world's biological and cultural diversity*. WWF (World Wide Fund For Nature) International.
- Oxfam (Oxford Committee for Famine Relief). (2017). Just 8 men own same wealth as half the world. January 16, 2017.
<<https://www.oxfam.org/en/pressroom/pressreleases/2017-01-16/just-8-men-own-same-wealth-half-world>>
- Pacchioli, D. (2013). Japan's Triple Disaster: Earthquake and tsunami led to release of radioisotopes. Woods Hole Oceanographic Institution. *Oceanus Magazine*.
<<http://www.whoi.edu/oceanus/feature/japan-triple-disaster>>
- PANNA (Pesticide Action Network North America). (2012). “Big 6” pesticide corporations top the list of food labeling opponents. October 11, 2012.
<<http://www.panna.org/press-release/“big-6”-pesticide-corporations-top-list-food-labeling-opponents>>
- Paraguassu, L. (2019). Amazon burning: Brazil reports highest forest fires since 2010. Aug. 20, 2019. Reuters: Environment. *Reuters*.
<<https://www.reuters.com/article/us-brazil-environment-wildfires/amazon-burning-brazil-reports-highest-forest-fires-since-2010-idUSKCN1VA1UK>>
- Parenti, C. (2012). ‘The limits to growth’: A book that launched a movement. *The Nation*. Dec. 5, 2012.
<<https://www.thenation.com/article/limits-growth-book-launched-movement/>>
- Parrotta, J. A., Fui, L. H., Jinlong, L., Ramakrishnan, P. S., & Yeo-Chang, Y. (2009). Traditional forest-related knowledge and sustainable forest management in Asia. *Forest Ecology and Management*, 257(10):1987-1988.
- Parrotta, J. A., & Trostler, R.L. (2012). *Traditional forest-related knowledge: Sustaining communities, ecosystems, and biocultural diversity*. Springer.
- Pelaez Lopez, A. (2019). Not to forget, there are also people from the “Global South” living in the “Global North.” July 24, 2019. Retrieved: March 3, 2020. *Instagram*: @MigrantScribble.
<https://www.instagram.com/p/B0UiUgSAZU_/>

- Pearce, F. (2009). How 16 ships create as much pollution as all the cars in the world. *Daily Mail UK*. November 2009.
 <<http://www.dailymail.co.uk/sciencetech/article-1229857/How-16-ships-create-pollution-cars-world.html>>
- PERI (Political Economy Research Institute). (2019). ExxonMobil: University of Massachusetts Amherst.
 <<https://grconnect.com/green100/ry2017/index.php?search=yes&company2=827>>
- Philpott, T. (2016). New Threshold: 2015 Saw Average Carbon Dioxide Levels of 400 PPM. *Mother Jones*. October 25, 2016.
 <<http://www.motherjones.com/food/2015/05/monsanto-syngenta-merger-45-billion-pesticides/>>
- Pickrell, J. (2019). Australian blazes will ‘reframe our understanding of bushfire’. *Science (Vol. 266, Issue 6468, pp. 937)*.
- Piette, J. (2018). Energy Transfer and Banks Lost Billions by Ignoring Early Dakota Access Pipeline Concerns. Sept. 8, 2019. Truthout: News / Human Rights. *Truthout.com*.
 <<https://truthout.org/articles/energy-transfer-and-big-banks-lost-billions-in-dakota-access-pipeline/>>
- PLT (Project Learning Tree). (2019). Why Environmental Education is Important.
 <<https://www.plt.org/about-us/why-environmental-education-is-important/>>
- Posey, D. A., & Dutfield, G. (1996). Beyond intellectual property: toward traditional resource rights for indigenous peoples and local communities. *International Development Research Centre*.
 <<http://lib.icimod.org/record/10010/files/1393.pdf>>
- (1997). *Indigenous Peoples and Sustainability: Cases and Actions*. Utrecht: International Books.
- Pretty, J., Adams, B., Berkes, F., De Athayde, S. F., Dudley, N., Hunn, E., Maffi, L., Milton, K., Rapport, D., Robbins, P., & Sterling, E. (2009). The intersections of biological diversity and cultural diversity: towards integration. *Conservation and Society*, 7(2), 100.
- Proença, V., & Pereira, H. M. (2017). Comparing extinction rates: Past, present, and future extinction rates:
- Pungetti, G., Oviedo, G., & Hooke, D. (Eds.). (2012). *Sacred species and sites: advances in biocultural conservation*. Cambridge University Press.
- QG (Queensland Government). (2017). Sulfur dioxide. March 27, 2017.
 <<https://www.qld.gov.au/environment/pollution/monitoring/air/air-pollution/pollutants/sulfur-dioxide>>

- Sexton, J. (2007). Racial profiling and the societies of control. *Warfare in the American homeland: Policing and prison in a penal democracy*, 197-218.
- Rainforest Alliance. (2019). The Rainforest Alliance's response to the fires in the Amazon rainforest. Aug. 22, 2019.
<<https://www.rainforest-alliance.org/articles/rainforest-alliance-response-to-fires-in-amazon-rainforest>>
- Ramirez, T. L. & Blay, Z. (2016). Why people are using the term 'Latinx': Do you identify as "Latinx"? July 5, 2016. *HuffPost*.
<https://www.huffingtonpost.com/entry/why-people-are-using-the-term-latinx_us_57753328e4b0cc0fa136a159>
- Rancière, J. (1974). On the theory of ideology. *Radical Philosophy*.
<https://www.radicalphilosophyarchive.com/issue-files/rp7_article1_althussertheoryofideology_ranci%C3%A8re.pdf>
- Rapport, D. J. (2006). Sustainability science: an ecohealth perspective. *Sustainability Science*, 2(1), 77-84.
- Ratcliffe, R. (2018) 'Britons urged to help tackle modern slavery by reporting concerns', The Guardian, 26 January, p.1. Available at:
<<https://www.theguardian.com/world/2018/jan/17/britons-urged-helptackle-modern-slavery-reporting-concerns>>
- Raup, D. M. (1994). The role of extinction in evolution. *Proceedings of the National Academy of Sciences*, 91(15), 6758-6763.
- Rasmussen, S., Chen, L., Deamer, D., Krakauer, D. C., Packard, N. H., Stadler, P. F., & Bedau, M. A. (2004). Transitions from nonliving to living matter. *Science*, 303(5660), 963-965.
- Reaka-Kudla, M. L. (1997). The global biodiversity of coral reefs: a comparison with rain forests. *Biodiversity II: Understanding and protecting our biological resources*, 2, 551.
- Reason, P. (1998). Political, epistemological, ecological and spiritual dimensions of participation. *Studies in cultures, organizations and societies*, 4(2), 147-167.
- Reich, R. (2020). "How many Americans lost their jobs in just 2 months: 40,000,000. Billionaire wealth increase in the same 2 months: \$434,000,000,000. The system is rigged folks." May 21, 2020. *Twitter*: @RBReich.
<<https://twitter.com/RBReich/status/1263582931190079493>>
- (2020b). "America's billionaires grew their wealth by \$308,000,000,000 between March 18 and April 22..." May 19, 2020. *Twitter*.
<<https://twitter.com/RBReich/status/1262768223646355461>>

- Rice, D. (2019). Summer swelter: Earth just had its hottest June on record. *USA Today*. July 18, 2019. Updated July 26, 2019.
<<https://www.usatoday.com/story/news/nation/2019/07/18/global-warming-hottest-june-record-last-month/1767109001/>>
- Richards, R. J. (2009). Haeckel's embryos: fraud not proven. *Biology & Philosophy*, 24(1), 147-154.
- Riley, T. (2017). Just 100 companies responsible for 71% of global emissions, study says. July 10, 2017.
<<https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change>>
- Rinkevich, S., Greenwood, K., & Leonetti, C. (2011). Traditional ecological knowledge for application by service scientists. U.S. Fish and Wildlife Service, Native American Program.
<<https://www.fws.gov/nativeamerican/pdf/tek-fact-sheet.pdf>>
- Robert, K. W., Parris, T. M., & Leiserowitz, A. A. (2005). What is sustainable development? Goals, indicators, values, and practice. *Environment: science and policy for sustainable development*, 47(3), 8-21.
- Roberts, C.M., McClean, C.J., Veron, J.E., Hawkins, J.P., Allen, G.R., McAllister, D.E., Mittermeier, C.G., Schueler, F.W., Spalding, M., Wells, F. and Vynne, C. (2002). Marine biodiversity hotspots and conservation priorities for tropical reefs. *Science*, 295(5558), pp.1280-1284.
- Roy, A. (2011). *Walking with the Comrades*. Penguin.
-- (2017). *The Ministry of Utmost Happiness: A Novel*. Vintage.
- Royal Commission on Aboriginal Peoples. (1996). Report of the Royal Commission on Aboriginal Peoples. Vol. 3. Ottawa: Canada Communication Group.
<<http://data2.archives.ca/e/e448/e011188230-03.pdf>>
- Rueb, E. S., & Chokshi, N. (2019). Keystone Pipeline Leaks 383,000 Gallons of Oil in North Dakota. October 31, 2019. Updated November 2, 2019. *The New York Times*.
<<https://www.nytimes.com/2019/10/31/us/keystone-pipeline-leak.html>>
- Sack, C. (2016). A #NoDAPL Map: This pipeline could endanger the drinking water of millions. *The Huffington Post*. Nov. 2, 2016. Updated Dec. 2, 2016.
<https://www.huffpost.com/entry/a-nodapl-map_b_581a0623e4b014443087af35>

- Samuel, S. (2020). A staggering 1 billion animals are now estimated dead in Australia's fires. Updated: Jan. 7, 2020. *Vox.com*.
<<https://www.vox.com/future-perfect/2020/1/6/21051897/australia-fires-billion-animals-dead-estimate>>
- Sandoval, C. (2000). *Methodology of the Oppressed*. Minneapolis: University of Minnesota Press.
- Scheer, R. (2019). The Sordid Story Behind the Mass Extinction of Languages. June 28, 2019. *KCRW*.
<<https://www.kcrw.com/culture/shows/scheer-intelligence/the-sordid-story-behind-the-mass-extinction-of-languages>>
- Selig, E. R., Turner, W. R., Troëng, S., Wallace, B. P., Halpern, B. S., Kaschner, K., Lascelles, B.G., Carpenter, K. E. & Mittermeier, R. A. (2014). Global priorities for marine biodiversity conservation. *PloS one*, 9(1), e82898.
- Sharpe, C. (2016). *In the wake: On blackness and being*. Duke University Press.
- Shrumm, H. (2010). Exploring the Right to Diversity in Conservation Law, Policy, and Practice. *Policy Matters 17*. Gland, Switzerland: IUCN Commission on Environmental, Economic and Social Policy
- Silverman, H., Toropin, K., Sidner, S., & Perrot, L. (2020). Navajo Nation surpasses New York state for the highest Covid-19 infection rate in the US. Updated May 18, 2020. *CNN*.
<<https://edition.cnn.com/2020/05/18/us/navajo-nation-infection-rate-trnd/index.html>>
- Simons, G. F., & Fennig, C. D. (2017). *Ethnologue: languages of the world, 20th ed.* Dallas, Texas: Summer Institute of Linguistics International.
<<https://www.ethnologue.com/ethnblog/gary-simons/welcome-20th-edition>>
- Skelton, R., & Miller, V. (2017). Building Momentum for the Environmental Justice Movement. In *Environmental Racism and Classism*. Greenhaven Publishing.
- Skutnabb-Kangas, T. (2003). Linguistic Diversity and Biodiversity: The Threat from Killer Languages in *The politics of English as a world language: New horizons in postcolonial cultural studies*, 31.
- (2009). The stakes: Linguistic diversity, linguistic human rights and mother-tongue-based multilingual education or linguistic genocide, crimes against humanity and an even faster destruction of biodiversity and our planet. Keynote presentation: Bamako International Forum on Multilingualism, Bamako, Mali. January 19-21, 2009.
- (2018). Language rights and revitalization. *The Routledge handbook of language revitalization*. New York, NY: Routledge.

- Skutnabb-Kangas, T., Maffi, L., & Harmon, D. (2003). *Sharing a world of difference: the earth's linguistic, cultural and biological diversity*. UNESCO.
- Slobodkin, L. B. (1961). Preliminary ideas for a predictive theory of ecology. *The American Naturalist*, 95(882), 147-153.
- Snodgrass, J., & Tiedje, K. (2008). Indigenous nature reverence and conservation: seven ways of transcending an unnecessary dichotomy. *Journal for the Study of Religion, Nature and Culture*, 2(1), 6-29.
- Solórzano, D. G. (1997). Images and words that wound: Critical race theory, racial stereotyping, and teacher education. *Teacher Education Quarterly*, 5-19.
- Solórzano, D. G., & Yosso, T. J. (2002). Critical race methodology: Counter-storytelling as an analytical framework for education research. *Qualitative inquiry*, 8(1), 23-44.
- Spindler, E. A. (2013). The History of Sustainability: The origins and effects of a popular concept. In *Sustainability in Tourism* (pp. 9-31). Springer Gabler, Wiesbaden.
- Stolton, S., Dudley, N., & Randall, J. (2008). *Natural Security: Protected Areas and Hazard Mitigation*. WWF.
- Stork, N. E., & Habel, J. C. (2014). Can biodiversity hotspots protect more than tropical forest plants and vertebrates?. *Journal of Biogeography*, 41(3), 421-428.
- Stroshine, M. S., & Brandl, S. G. (2011). Race, gender, and tokenism in policing: An empirical elaboration. *Police Quarterly*, 14(4), 344-365.
- Stubley, P. (2019). Amazon tribe leader killed by illegal loggers as he guarded rainforest. November 2, 2019. *Independent UK*.
<<https://www.independent.co.uk/news/world/americas/rainforest-guard-killed-loggers-amazon-brazil-arariboia-paulo-guajajara-a9182781.html>>
- Sullivan, B. D. (2017). Mega-mergers in agribusiness raise concerns about food costs, biodiversity. *USA Today*. August 29, 2017.
<<https://www.usatoday.com/story/news/politics/2017/08/29/mega-mergers-agribusiness-raise-concerns-food-costs-biodiversity/558980001/>>
- Survival International. (2019). “You have stolen our forest.” Baka “Pygmies” heartfelt plea to European Commission.” *Survival International: News*.
<<https://www.survivalinternational.org/news/12204>>
- (2020). *Survival International: Dongria*. <<https://www.survivalinternational.org/dongria>>

- Sutherland, W. J. (2003). Parallel extinction risk and global distribution of languages and species. *Nature*, 423: 276-9.
- Sverdrup, H., & Stjernquist, I. (Eds.). (2002). Defining sustainability. In: Sverdrup H., Stjernquist I. (eds) *Developing principles and models for sustainable forestry in Sweden* (Vol. 5). Springer Science & Business Media.
- (2013). *Developing principles and models for sustainable forestry in Sweden* (Vol. 5). Springer Science & Business Media.
- T&E (Transport & Environment). (2019). Shipping Impact on Air Quality. European Federation for Transport and Environment.
<<https://www.transportenvironment.org/what-we-do/shipping-and-environment/shipping%E2%80%99s-impact-air-quality>>
- Takaki, R. T. (1990). *Iron Cages: Race and Culture in 19th-Century America*. Reprint. ed. Oxford University Press.
- Tait, R. C., & Chibnall, J. T. (2014). Racial/ethnic disparities in the assessment and treatment of pain: psychosocial perspectives. *American Psychologist*, 69(2), 131.
- Taylor, D. E. (2000). The rise of the environmental justice paradigm: Injustice framing and the social construction of environmental discourses. *American behavioral scientist*, 43(4), 508-580.
- (2014). *Toxic Communities: Environmental Racism, Industrial Pollution, and Residential Mobility*. New York: New York University Press.
- Taylor, P., Kochhar, R., Fry, R., Velasco, G., & Motel, S. (2011). Wealth gaps rise to record highs between Whites, Blacks and Hispanics. *Washington, DC: Pew Research Center*, 37.
- Taylor, S.R. (2020). Why Talking to Your White Family About Black People is the Wrong Approach. May 5, 2020. *Instagram: @sonyarenetaylor*.
<<https://www.instagram.com/p/CBCsk1GACEI/>>
- Temudo, M. P. (2012). "The White Men Bought the Forests": Conservation and Contestation in Guinea-Bissau, Western Africa. *Conservation and Society*, 10(4), 354.
<<http://www.conservationandsociety.org/article.asp?issn=0972-4923;year=2012;volume=10;issue=4;spage=354;epage=366;aulast=Temudo>>
- Terralingua. (2014). Biocultural Diversity Education Initiative: An Overview of a New Approach to Education and Curriculum Development.
<<https://terralingua.org/wp-content/uploads/2015/07/BCDEI-Overview.pdf>>

- (2018). About Us.
<<https://terralingua.org/about-us/our-team/director/>>
- (2019). Our Mission.
<<https://terralingua.org/about-us/our-mission/>>
- Tessum, C. W., Apte, J. S., Goodkind, A. L., Muller, N. Z., Mullins, K. A., Paoella, D. A., ... & Hill, J. D. (2019). Inequity in consumption of goods and services adds to racial–ethnic disparities in air pollution exposure. *Proceedings of the National Academy of Sciences*, *116*(13), 6001-6006.
- Thiele, L.P. (2013). Environmental benign growth: Sustainable development. In *Sustainability*. Malden, MA: Polity Press.
- Tittensor, D. P., Mora, C., Jetz, W., Lotze, H. K., Ricard, D., Berghe, E. V., & Worm, B. (2010). Global patterns and predictors of marine biodiversity across taxa. *Nature*, *466*(7310), 1098.
- Touchman, G. (2020). Navajo Nation has lost more to coronavirus than 13 states. April 17, 2020. *CNN*. <<https://www.cnn.com/videos/us/2020/04/17/navajo-native-american-coronavirus-pkg-tuchman-ac360-vpx.cnn>>
- Trask, H. K. (1999). *From a Native Daughter: Colonialism and Sovereignty in Hawai'i*. University of Hawaii Press.
- Tramel, S. (2018). Imprisoned: Inside the Politics of Control and Resistance. Feb. 1, 2018. *USSEN (U.S. Solidarity Economy Network)*.
<<https://ussen.org/2018/02/01/imprisoned-inside-the-politics-of-control-and-resistance/>>
- Trelawny-Cassity, L. (2020). Aristotle (384 B.C.E. – 322 B.C.E. Internet Encyclopedia of Philosophy: A Peer-Reviewed Academic Resource.
<<https://www.iep.utm.edu/2019/>>
- Tuck, E. (2009). Suspending damage: A letter to communities. *Harvard Educational Review*, *79*(3), 409-428.
- Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, education & society*, *1*(1).
- TWUR (The World University Rankings). (2019). Top universities for climate action. April 3, 2019. Updated June 27, 2019. *The World University Rankings*.
<<https://www.timeshighereducation.com/student/best-universities/top-universities-climate-action>>
- Tylor, S. E. B. (1920). B. (1871). *Primitive culture*, 1.
- UCLA (University of California Los Angeles). (2020). Environment and Sustainability.
<<http://www.ucla.edu/environment-and-sustainability>>

- UN (United Nations). (1997). UN Conference on Environment and Development (1992). May 23, 1997.
<<http://www.un.org/geninfo/bp/enviro.html>>
- (2000). United Nations Millennium Declaration. September 18, 2000.
<<https://www.un.org/millennium/declaration/ares552e.pdf>>
- (2002). World Summit on Sustainable Development. The Johannesburg declaration on sustainable development: From our origins to the future.
<http://www.un.org/ga/search/view_doc.asp?symbol=A/C.2/57/L.83&Lang=E>
- (2010). The International Year of Rapprochement of Cultures.
<<http://www.un.org/en/events/iyrc2010/>>
- (2012). Declaration of the United Nations conference on the human environment.
<http://legal.un.org/avl/pdf/ha/dunche/dunche_ph_e.pdf>
- (2014). The Road to Dignity by 2030: Ending Poverty, Transforming All Lives and Protecting the Planet.
<https://www.valuescentre.com/sites/default/files/uploads/article_delivering_un_global_goals_0.pdf>
- (2015). Transforming our world: The 2030 agenda for sustainable development. *General Assembly 70 session*.
<https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E>
- (2015b). The Millennium Development Goals Report 2015. July 6, 2015.
<[http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20\(July%201\).pdf](http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20(July%201).pdf)>
- (2018). We the peoples: The role of the united nations in the 21st century. (Millennium report of the secretary-general). Past Conferences, Meetings and Events.
<http://www.un.org/en/events/pastevents/we_the_peoples.shtml>
- (2019). Sustainable Development Goals: Goal 13: Take urgent action to combat climate change and its impacts.
<<https://www.un.org/sustainabledevelopment/climate-change/>>
- UNFCCC (United Nations Framework Convention on Climate Change). (2016). Shipping Aviation and Paris. May 18, 2016.
<<https://unfccc.int/news/shipping-aviation-and-paris>>
- (2018). UN climate change: About the secretariat.
<<https://unfccc.int/about-us/about-the-secretariat>>
- (2018b). The Paris Agreement. <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement?>>
- UNCHE (United Nations Conference of the Human Environment). (1973). *Report of the United Nations Conference of the Human Environment*. June 5-16, 1972. UN, New York.
<https://www.un.org/ga/search/view_doc.asp?symbol=A/CONF.48/14/REV.1>
- UNEP (United Nations Environment Programme). (2016). Understanding the Long-Term Impacts of Natural Resource Extraction. May 16, 2016.
<<https://www.unenvironment.org/news-and-stories/story/understanding-long-term-impacts-natural-resource-extraction>>

- UNESCO (United Nations Educational, Scientific and Cultural Organization). (1945) UNESCO Constitution. November 16, 1945.
 <http://portal.unesco.org/en/ev.php-URL_ID=15244&URL_DO=DO_TOPIC&URL_SECTION=201.html>
- (1982). UNESCO Mexico City Declaration on Cultural Policies. July 26 – August 6, 1982.
 <<http://unesdoc.unesco.org/images/0005/000525/052505eo.pdf>>
- (2001). UNESCO Universal Declaration on Cultural Diversity. November 2, 2001.
 <http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/5_Cultural_Diversity_EN.pdf>
- (2002). UNESCO Universal Declaration on Cultural Diversity. August 26 –September 4, 2002.
 <<http://unesdoc.unesco.org/images/0012/001271/127162e.pdf>>
- (2003). Language vitality and endangerment. UNESCO Ad Hoc Expert Group on Endangered Languages. Document submitted to the *International Expert Meeting on UNESCO Programme Safeguarding of Endangered Languages* Paris, March 10–12, 2003.
 <http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/Language_vitality_and_endangerment_EN.pdf>
- (2009). UNESCO World Report: Investing in Cultural Diversity and Intercultural Dialogue.
 <<https://unesdoc.unesco.org/ark:/48223/pf0000185202>>
- (2011). Convention concerning the protection of the world cultural and natural heritage. May 6, 2011.
 <<http://whc.unesco.org/archive/2011/whc11-35com-5Ee.pdf>>
- (2017). Biodiversity and linguistic diversity: Maintaining indigenous languages, conserving biodiversity.
 <<http://www.unesco.org/new/en/culture/themes/endangered-languages/biodiversity-and-linguistic-diversity/>>
- (2019). 2019 International Year of Indigenous Languages. January 12, 2019.
 <<https://www.un.org/development/desa/dspd/2019/01/2019-international-year-of-indigenous-languages/>>
- UNPFII (The United Nations Permanent Forum on Indigenous Issues). (2016). Together we achieve: Backgrounder.
 <<https://www.un.org/esa/socdev/unpfii/documents/2016/Docs-updates/backgrounderL2.pdf>>
- U.S. Census Bureau. (2019). Census Bureau Projects U.S. and World Populations on New Year’s Day. Release Number CB19-TPS.05. February 1, 2019.
 <<https://www.census.gov/newsroom/press-releases/2019/new-years-population.html>>
- (2019b). Quick Facts: Flint city, Michigan.
 <<https://www.census.gov/quickfacts/flintcitymichigan>>
- (2019c). Quick Facts: Newark city, New Jersey.
 <<https://www.census.gov/quickfacts/fact/table/newarkcitynewjersey,US/PST045218>>

- (2019d). U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates: Bismarck city, North Dakota.
<<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>>
- (2019e). U.S.. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates: Mandan city, North Dakota.
<<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>>
- Verschuuren, B., Wild, R., Oviedo, G., & McNeely, J. (Eds.). (2010). *Sacred natural sites: Conserving nature and culture*. Routledge.
- Vié, J. C., Hilton-Taylor, C., & Stuart, S. N. (Eds.). (2009). *Wildlife in a changing world: an analysis of the 2008 IUCN Red List of threatened species*. IUCN.
- Von Blum, P. (2016). Racism and the law: Second edition. *Cognella Academic Publishing*.
- Wake, D. B., & Vredenburg, V. T. (2008). Are we in the midst of the sixth mass extinction? A view from the world of amphibians. *Proceedings of the National Academy of Sciences*.
- Wallis, H. (2019). Colombia: Residents mourn indigenous leaders killed in Cauca. November 3, 2019. Al Jazeera: News/Colombia. *Al Jazeera*.
<<https://www.aljazeera.com/news/2019/11/colombia-residents-mourn-indigenous-leaders-killed-cauca-191103181437142.html>>
- WCED (World Commission on Environment and Development). (1987). Report of the World Commission on Environment and Development: “Our Common Future.” United Nations.
- Weber, C. (2018). 1.5°C is the new 2°C. Reuters. October 8, 2018.
<<https://blogs.thomsonreuters.com/sustainability/2018/10/08/every-half-a-degree-matters-1-5c-secures-a-much-brighter-future-than-2c/>>
- Welch, C. (2019). How Amazon forest loss may affect water – and climate – far away. National Geographic: Environment. Original: Nov. 19, 2018. Updated: Aug. 27, 2019. *National Geographic*. <<https://www.nationalgeographic.com/environment/2018/11/how-cutting-the-amazon-forest-could-affect-weather/>>
- West, C. (2011). Cornel West: Justice is what love looks like in public. Cornel West comes to Howard University to give a sermon.
<https://www.youtube.com/watch?v=nGqP7S_WO6o>
- Wilderson III, F. B. (2010). *Red, white & black: Cinema and the structure of US antagonisms*. Duke University Press.

- Williams Jr, R. A. (1990). *The American Indian in western legal thought: the discourses of conquest*. Oxford University Press.
- Williams, K. (2016). Oregon's endangered species: Northern spotted owls and more. July 19, 2016. *The Oregonian*.
<https://www.oregonlive.com/trending/2016/07/nature_on_the_brink_oregons_en.html>
- Williams, K. J., Ford, A., Rosauer, D. F., De Silva, N., Mittermeier, R., Bruce, C., Larsen, F.W. & Margules, C. (2011). Forests of East Australia: the 35th biodiversity hotspot. In *Biodiversity hotspots* (pp. 295-310). Springer, Berlin, Heidelberg.
- Witt, L. (2018). "I would love an article about the term BIPOC and why you use it. I've googled and there really isn't anything out there. Just the definition, but not why it's used instead of POC." June 12, 2018. Retrieved: October 5, 2019. *Twitter: @FemmeFeministe*.
<<https://twitter.com/femmeFeministe/status/1006906059582296064?lang=en>>
- Woodman, J., & Grig, S. (2015). Progress can kill: How imposed development destroys the health of tribal peoples, 2nd ed.
<<https://assets.survivalinternational.org/documents/1438/progresscankill.pdf>>
- Woodward, A. (2019). The 'lungs of the planet' are on fire.' Aug. 22, 2019. *World Economic Forum*.
<<https://www.weforum.org/agenda/2019/08/amazon-burning-unseen-rate/>>
- World Bank (2018). Nearly half the world lives on less than \$5.50 a day. October 17, 2018.
<<http://www.worldbank.org/en/news/press-release/2018/10/17/nearly-half-the-world-lives-on-less-than-550-a-day>>
- WWF (World Wildlife Fund). (2017). Coral Reefs.
<http://wwf.panda.org/our_work/oceans/coasts/coral_reefs/>
- (2018). WWF Report Reveals Staggering Extent of Human Impact on Planet. October 29, 2018. WWF, DC.
<<https://www.worldwildlife.org/press-releases/wwf-report-reveals-staggering-extent-of-human-impact-on-planet>>
- (2018b). *Living Planet Report - 2018: Aiming Higher*. Grooten, M. & Almond, R.E.A. (Eds). WWF, Gland, Switzerland.
<https://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018/>
- (2019). About: Leadership. <<https://www.worldwildlife.org/about/leadership>>
- Wynter, S. (2003). Unsettling the coloniality of being/power/truth/freedom: Towards the human, after man, its overrepresentation—An argument. *CR: The new centennial review*, 3(3), 257-337.

- Yourish, K., Lai, K. K. R., Ivory, D., & Smith, M. (2020). One-Third of All U.S. Coronavirus Deaths Are Nursing Home Residents or Workers. Updated May 11, 2020. *The New York Times*.
<<https://www.nytimes.com/interactive/2020/05/09/us/coronavirus-cases-nursing-homes-us.html>>
- Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, 8(1), 69-91.
- Yosso, T., Smith, W., Ceja, M., & Solórzano, D. (2009). Critical race theory, racial microaggressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review*, 79(4), 659-691.
- Yosso, T. J., & Solórzano, D. G. (2005). Conceptualizing a critical race theory in sociology. *The Blackwell companion to social inequalities*, 117-146.
- Yu, R. Y., & Martin, W. F. (2016). Symbiotic Associations: All About Chemistry. In *The Mechanistic Benefits of Microbial Symbionts* (pp. 3-11). Springer, Cham.
- Yueng, J. (2019). Blame humans for starting the Amazon fires, environmentalists say. Aug. 23, 2019. *CNN*.
<<https://www.cnn.com/2019/08/22/americas/amazon-fires-humans-intl-hnk-trnd/index.html>>
- Zalasiewicz, J., Williams, M., Steffen, W., & Crutzen, P. (2010). The new world of the Anthropocene. *Environmental Science and Technology*; 44, 2228-2231.
- Zhang, J. J., & Samet, J. M. (2015). Chinese haze versus Western smog: lessons learned. *Journal of thoracic disease*, 7(1), 3.
- Zia, M., Hansen, J., Hjort, K., & Valdes, C. (2019). Brazil Once Again Becomes the World's Largest Beef Exporter. July 1, 2019. united states Department of Agriculture (USDA).
<<https://www.ers.usda.gov/amber-waves/2019/july/brazil-once-again-becomes-the-world-s-largest-beef-exporter/>>
- Zimmer, K. (2019). Why the Amazon doesn't really produce 20% of the world's oxygen. Aug. 28, 2019. National Geographic: Environment. *National Geographic*.
<<https://www.nationalgeographic.com/environment/2019/08/why-amazon-doesnt-produce-20-percent-worlds-oxygen/>>

Ziska, L. H., Pettis, J. S., Edwards, J., Hancock, J. E., Tomecek, M. B., Clark, A., Dukes, J.S., Loladze, I., & Polley, H. W. (2016). Rising atmospheric CO₂ is reducing the protein concentration of a floral pollen source essential for North American bees. In *Proc. R. Soc. B* (Vol. 283, No. 1828, p. 20160414). The Royal Society.

Zialcita, P. (2019). Australia Wildfires: State of Emergency Declared Over ‘Catastrophic’ Danger. Nov. 11, 2019. *NPR*.
<<https://www.npr.org/2019/11/11/778271273/australia-wildfires-state-of-emergency-declared-over-catastrophic-danger>>