

# Greening the Academy

## Ecopedagogy Through the Liberal Arts

Edited by  
Samuel Day Fassbinder  
Anthony J. Nocella II  
and Richard Kahn



*SensePublishers*

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*Ecopedagogy Through the Liberal Arts*

*Edited by*

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## WHAT PEOPLE ARE SAYING ABOUT *GREENING THE ACADEMY*

The necessity of linking together single issue social justice pursuits cannot be overstated, nor can the crucial role higher education must play in helping to solve international social justice dilemmas. *Greening the Academy* provides a much-needed analysis focusing on the importance of these issues as a means to progress global peace and justice issues. A must read for anyone seriously interested in making a difference in the world.

- Craig Rosebraugh,  
Author of *Burning Rage of a Dying Planet*

Many of the most important forces for social change in human history have taken root in our universities, and today the academy is a crucial site where scholars are working to integrate ecological sustainability and social justice. *Greening the Academy* is a clarion call for deep green approaches to thinking, teaching, research, and action that can make a dramatic and positive difference for the future of all species.

- Dr. David Naguib Pellow,  
Author of *Garbage Wars: The Struggle for Environmental Justice in Chicago*

Critical, crucial, and challenging, this book initiates a dialogue essential to the survival of our planet and all the species on it, including our own. Ignored for far too long by leaders of the major social institutions around the world, this book poses the question of whether the academy will belatedly tackle the urgent policies and actions necessary to ameliorate the ecological destruction wrought by predatory capitalism. University Centers for Teaching and Learning should use this book to generate meaningful discussions of curriculum transformation wherever possible.

- Dr. Julie Andrzejewski,  
Co-Director, Social Responsibility Masters Program,  
St. Cloud State University

*Greening the Academy* breaks through barriers that continue to enervate higher education's contribution to environmental education and ecological justice. By connecting radical "cognitive praxis" and authentic Indigenous perspectives to a variety of relevant topics, it offers educators motivation and maps for helping us all regain our lost balance before it is too late.

- Four Arrows,  
Editor of *Unlearning the Language of Conquest:  
Scholars Expose Anti-Indianism in America*

WHAT PEOPLE ARE SAYING ABOUT *GREENING THE ACADEMY*

This is an important and urgent book that represents a landmark for higher education. It is a book that must be heeded, and, more importantly acted upon.

- Dr. Peter McLaren,  
Author of *Che Guevara, Paulo Freire, and the Pedagogy of Revolution*

Higher education plays an increasingly important role globally in determining responses to human-induced environmental change. *Greening the Academy* shows us that it is crucial that educational policy, curriculum, institutional practice, and scholarly research go beyond greenwashing business as usual and instead engage critically with environmental issues. The book highlights how environmental concerns are not only the purview of the sciences but are centrally a result of cultural and economic practices and priorities, and thus must be engaged interdisciplinarily and in relation to community and place. To change the path we have set for the planet, it will take collaboration and persistence; this book offers hope in moving forward.

- Dr. Marcia McKenzie,  
Editor of *Fields of Green: Restorying Culture, Environment, and Education*

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# FOREWORD

BILL MCKIBBEN

I've had the privilege, for more than a decade now, of being associated with Middlebury College's Environmental Studies Department. It's the oldest such beast in the country, dating back to the early 1960s, and it produces an astonishing number of graduates who go on to leadership roles in advocacy groups, state and federal agencies, and green business. The entire original leadership of 350.org, which in 18 months grew to be the largest grassroots climate campaign in the planet's history, was made up of kids who'd graduated Middlebury six months before they began.

My theory for why Middlebury was punching above its weight involved more than simply the superb instruction my colleagues were offering. It was also, I think, the design of the program—in particular, the fact that the humanities have always been a central part of the program, as important as science and policy. In most places, environmental studies have been focused on the natural sciences, or captured over time by them. And this makes a certain kind of sense: they're the easiest part of the equation to systematize, and the hardest to screw up. There's little danger of fuzzy thinking; for deans worried that programs will be partisan or ideological, there's comfort in biology and chemistry being at the core.

But the great insight of ecology—the greatest scientific insight of the 20th century, far more important in the long run than cracking the atom—was that everything was hooked together. And that's as true, in a way, in our political and economic ecosystem as it is in any vernal pool or alpine meadow. When we deal with a problem like global warming, the physics and chemistry are, at this point, the least of the issue. We understand them well enough to know *how* to act; that we *don't* act has something to do with other parts of our brain and heart. We need to understand the economic forces that constrain us, and also the cultural patterns, psychological intuitions, and visceral fears that keep us from doing what we must. And so—among other things—we need voices from people like Wendell Berry, Terry Tempest Williams, Leslie Marmon Silko, Ed Abbey, Henry Thoreau, Gary Snyder, Richard Cizik.

More, we need the kind of interdisciplinary insight that only a college or university can offer. The ag school needs to be in touch with the theology school, and the psych department needs to be talking to the chemists. If there was ever an argument for escaping the deep silos of academe, the environmental crisis is it. It's not a "subject" as much as a lens through which to view the world. These papers begin to postulate how different disciplines—right down to criminology—might

## FOREWORD

deal with the environmental dilemma. That's exciting to read, but it's even more exciting to see them all gathered in the same place, speaking to each other. It's a rich conversation, and one we need to have urgently, because there's nothing timeless about the trouble we face. We're in an emergency, and in an emergency you call on all hands.

## ACKNOWLEDGEMENTS

We would like to thank the planet Earth, all of the elements, and the creatures of the world for the possibility of life. Also, we thank Peter de Liefde and Sense Publishers for believing in this project and for being so passionate about its completion during the editing stage. It goes without saying that *Greening the Academy* could not have been put together without the fine contributions of its many preeminent authors: Bill McKibben, Piers Beirne, Nigel South, Kishi Animashaun, Timothy Luke, Steven Best, Miriam Kennet, Michelle Gale de Oliveira, Donna Houston, Eva Swidler, Brian McKenna, Tema Milstein, Corey Lewis, Greta Gaard, and David Greenwood. We would also like to thank Craig Rosebraugh, David Naguib Pellow, Four Arrows, Peter McLaren, Julie Andrzejewski, and Marcia McKenzie for their support of this book. Finally, we thank our universities, colleagues, many friends, and our families for granting us the time and strength to see this project through to its eventual completion.



## DEDICATION

This book is dedicated to those who struggle against the antidemocratic privatization and militarization of the academy. We side with and salute all those who work to oppose an academic industrial complex that vivisects animals, engineers dangerous genetic modifications of life, and pollutes the commons (including the minds of a potentially just community). Happily, there is resistance in higher education still and, with it, hope. Occupy the curriculum. Occupy the disciplines. Occupy the campuses. Occupy everywhere.



## INTRODUCTION

RICHARD KAHN, ANTHONY J. NOCELLA II  
AND SAMUEL DAY FASSBINDER

Who will prepare the scientists, technicians, engineers, entrepreneurs and global humanitarians that can convert urgency into opportunity, replace fossil fuel dependence with clean energy innovation, and rebuild our economy and society on a new and greener foundation? Who will educate citizens ready to master these new realities and ensure exemplary stewardship of our planet for now and for future generations? The answer is right here in this room. America's educators, in fact, our nation's entire education system must rise to this challenge, and our higher education leaders and communities, in particular, must lead the way. Secretary Duncan—who will speak with you tomorrow—often says that we must educate our way to a better economy. To expand on his remarks, we must educate our way to a green economy and a better environment!

—U.S. Under Secretary of Education, Martha Kanter, (2010)  
Remarks at the Department of Education's "Sustainability Education  
Summit: Citizenship and Pathways for a Green Economy"<sup>1</sup>

The university...has become a service for sale, ever more ready to hire itself out to governments or multinationals. It makes itself important through communal navel-gazing. Pedagogues and astronomers, gene researchers and sociologists, all work to process data and present them for verification to a management committee of peers, that is, likeminded data producers. What goes on in the lab has lost all but a tenuous tie to sense and meaning, let alone truth. Why is it...that so few of those who share our conviction are willing to come out and confess this?

—Ivan Illich (1991)

So long as there is a dysfunction in a system, a departure from known laws governing its operation, there is always the prospect of transcending the problem. But when a system rides roughshod over its own basic assumptions, supersedes its own ends...then we are contemplating not crisis but catastrophe.

—Jean Baudrillard (2009)

One cosmogonic story we can tell about education for sustainability concerns the birth of academe. To speak of academia today is to signify a collection of institutions of “higher” learning, research and instruction. These may be located on traditional campuses with ivy-covered buildings surrounding grand central lawns, or in a series of urban buildings amidst bustling city downtowns, or even in suburban corporate office parks. Increasingly, such institutions also virtually inhabit the Internet as either a primary or significant auxiliary domain.

Initially, however, long ago in the centuries prior to the Common Era, the Ancient Greek *Akademia* was a large grove of sacred olive trees dedicated to Athena, the Goddess of Wisdom. Surrounded by a wall containing various statues of the great individuals of Athens, and dotted here and there with ceremonial temples, the place functioned as a regional parkland for citizens’ recreation and ritual. Within this civic wooded area, a smaller garden plot belonging to Plato was additionally established. It was here in this verdant space that Plato began his famous philosophical school—with its students becoming known as the “academics.”

The Platonic academic corpus contributed significantly to the educational heights of Athenian *paideia*, which in turn became the paradigmatic example of civilized life through its cultural reproduction as the Roman tradition of *humanitas*—the foundation for what we have come to designate in modern times as the humanities curriculum (Kahn, 2010). Ironically, and somewhat tellingly, the Romans paid their debt to the Academy by invading and devastating it, while felling its lauded trees in support of the Roman military machine’s imperial conquest of the Aegean that was then taking place during the Hellenistic era. The recent movie *Avatar* perhaps lends a useful set of images to help us envision what the siege of the *Akademia* must have looked and felt like to those Greeks who had consecrated it as the presumed navel of universal learning. Thus, to speak of “greening the academy” suggests that there is something much deeper (and even archetypal) at stake than the “green campus movement” (Orr, 2010; Beringer & Adombent, 2008; Koester, 2006) now in vogue—that reforms, however welcome, like STARS,<sup>2</sup> the gathering of college and university Presidents as signatories for a campus climate agreement, or schools investing in the creation of LEED certified architecture,<sup>3</sup> are woefully insufficient ends that must themselves be reformed. Indeed, the history of academia (per this origin story) correspondingly functions as a secular mythopoetic narrative to the Biblical—and other similarly religious—tales that chronicle the devastating spiritual loss of an Edenic habitat, even as it likewise suggests a conclusion in which the “garden” is hopefully restored through a process of continual renovation in accordance with the spirit of moral progress: *universitas semper reformanda*.

Unfortunately, we need only look at the state of higher education today to see, despite its undoubtedly remaining a contested terrain (this book being one such contestation), that the 21<sup>st</sup> century finds academia moving steadily from a position characterized by continual crisis towards one of epochal catastrophe. In a world in which global industrial systems have clearly emerged as major powers,

thereby generating unprecedented historical outcomes of planetary genocide, ecocide, zoöcide—and likewise, epistemicide (see McLaren, 2012)—the idea of “sustainability” must thus strive to take rigorously oppositional and tactically concrete forms both on and off campus, if it is to transcend greenwashing by the public relations industry as purchased by the “power complex” (Best et al., 2011) of said systems. Sustainability cannot simply be handed over to STEM (science, technology, engineering and mathematics) programs to coordinate as a field of endeavor without being falsified. Neither is it sufficient merely to offer interdisciplinary environmental studies programs (themselves often tilted toward and disciplinarily controlled by the environmental sciences) as a reasonable reform in sustainability’s name. What is required is not a curricular addendum within the campus that passes under the happy buzzword of furthering “sustainable development,” but rather a sustained critical intervention by visionary educational leaders, critical faculty, agitated students, and emancipatory movements belonging to the communities in which academic institutions are based, all organized together in order to morally transfigure the relationship between the school and the society as part of a collective aspiration for the total liberation of the potential peace, justice, joy, and the vital well-being of our emerging planetary community.

By contrast, as Henry Giroux (2007) has aptly put it, the academic contribution to the project of human freedom—denoted clearly since antiquity by the moniker “liberal arts” (*artes liberales*), the literacy curriculum requisite for a vibrant and democratic public citizenry—must now be understood to be in chains. The last few decades especially have found universities and other post-secondary education institutions in the grips of an American-styled marketization paradigm (Slaughter & Rhoades, 2009), in which their traditional role as a resourceful public sphere is being creatively destroyed in order to fashion academe as a global network of corporate-statist bureaucracies (Pusser et al., 2011) focused upon obtaining short-term, quantifiably measurable goals of increased knowledge productivity, maximized economic efficiency, and the manufacture of a biopolitical social totality (Pierce, 2013). Such might be termed the Age of the Neoliberal Arts.

For these reasons, this introduction asserts that education for sustainability must now take the insurgent standpoints<sup>4</sup> of “militant research” (Shukaitis et al., 2007) that are demanded by ecopedagogy as an affiliated movement-of-movements.<sup>5</sup> It does so to refuse the systemic greening of the academy, where “greening” is but a hegemonic code for the transmutation of the diverse array of human values produced and conserved within the academy into the singular value of the greenback standard as a commodity in service to regimes of imperialist finance. When *Greening the Academy* herein interrogates the liberal arts disciplines, then, it does so pedagogically to explicate the qualitative differences between capitalist (and related oppressive forms of) disciplinary “greenspeak,” on the one hand, and the disruptive, democratic types of ecological disciplinarity (Fassbinder, 2008) that move beyond mere speech and to which we must now transition by any means necessary, on the other.

Ecopedagogy as Environmental Justice and Green Critical Criminology

It has been nearly a decade since Julian Agyeman and Craig Crouch (in Corcoran & Wals, 2004) offered their own powerful critique of what passes for sustainability education in colleges and universities. It is worth repeating at length:

The current, predominant orientation of sustainability discourses in higher education is one of *environmental sustainability*. At the university level, themes associated with sustainability are therefore taught in departments of environmental science and environmental studies, emphasizing ecology, resource management, and environmental economics.

This pedagogical approach means that aspects of sustainability having to do with justice and equity are, if at all, dealt with in departments outside the environmental studies...The domination of ‘*sustainability as science*’, together with its polarization against ‘*sustainability as justice and equity*’, is not only an inaccurate representation of the reality of sustainability issues, but also imparts a distorted picture to students. As a result, it is possible to graduate from university programs with credentials implying expertise in sustainability issues with a full understanding of the science of sustainability, but not the fundamental justice and equity issues that are inseparable from holistic considerations of sustainability (pg. 113).

We have yet to see much, if any, progress in re-orienting the dominant academic tendency—in the name of “sustainability”—of un-tethering issues of environmental literacy from prevailing ethical concerns such as being “summoned politically to work in pursuit of cultural and linguistic democracy, Indigenous sovereignty, and human rights” (Darder, 2011, pg. 329). As justice-seeking activists and critical pedagogues well know, the inability to find meaningful institutional reform in the face of clearly stipulated requests generally speaks less to the failure of those requests being understood and more to the reality that such demands are understood to be generally unwelcome.

The ways in which power works in education in this way, at both the macro and micro levels, to at once block and advance the liberation movement(s) for sustainability is the curricular purview of ecopedagogy. Such involves an ongoing interrogation of the campus through “a critical pedagogy of place” (Greenwood, 2010; 2008; Gruenewald, 2003), in which “place” is achieved through a justice-seeking lens. In this regard, Dave Hill and Simon Boxley helpfully summarize that “Recent developments in critical ecopedagogy emphasize an education within a ‘dialectics of justice’ (McLaren & Houston, 2005, p. 169), the two sides of this dialectic being *environmental justice*—the question of the unequal distribution of harmful environments between people—and *ecological justice*—the justice of the relationship between humans and the rest of the world.”

Ecopedagogues tackling the problems of sustainability will find that the dialectics of justice cast the academy in a pretty unsavory light. Campuses, for example, are

well known as major polluters and the pollution they produce goes far beyond any anthropogenic greenhouse gas contributions that they may provide. Consider a 2001 audit by an office of the U.S. Environmental Protection Agency that listed a representative sample of 175 academic institutions as commonly violating, by turn: the Clean Air Act, the Clean Water Act, the Emergency Planning and Community Right-to-Know Act, the Resource Conservation Recovery Act, the Toxic Substance Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, various state measures, as well as these colleges and universities having committed failures to properly institute spill prevention controls and countermeasures or to ensure the safe working of their underground storage tanks.<sup>6</sup> As gross industrial pollution is both a major social and biological harm that disproportionately affects the poor and people of color,<sup>7</sup> as well as being a primary contributor to the ruination of the land and destruction of species diversity, ecopedagogical research concerned with “greening the academy” suggests the topic of pollution should serve as a thematic focal point around which to organize change.<sup>8</sup>

For sure, when campuses pollute, all associated must bear some of the yoke of the responsibility for it. Yet, Weyerhaeuser paper contracts and air-conditioned offices aside, it seems conservatively plausible to suggest that those in the social sciences and humanities do not contribute anything resembling as much pollution as do those scientists, engineers and other campus lab workers whose careers revolve around projects granted by the military, corporations, and other governmental agencies interested in manufacturing research. If this is true, it suggests that charges of academic crimes against environmental and ecological justice should be properly brought to bear first and foremost upon the STEM initiatives that have come to pervade colleges and universities, and that the liberal arts’ biggest offense may be in not helping these allegations to be effectively made both near and far.

In speaking of charges against the academy, and to suggest that universities must be brought to bear responsibility for the socio-ecological crimes wrought by their disciplinary technics, here the movements for ecopedagogy and environmental justice enter into an active partnership with the emerging movement for critical criminology (see Nocella II, 2011). Though beyond the scope of *Greening the Academy* to treat at any length, it bears mentioning here that it is the opinion of this book’s editors that it is highly unlikely that curricular and disciplinary formations in higher education will change in order to better accord with demands for environmental and ecological justice without an organized sustainability movement also concerned with:

1. Teaching and learning the differences between retributive, restorative/ reparative, and transformative justice approaches across the curriculum;
2. Actively working with those who have been unjustly harmed inside and outside of the academy in order to bring these criminological approaches to bear on both singular and systematic matters of environmental and ecological justice, with offending parties and their institutional representatives being held accountable and made available for healing encounters; and

3. Committing campuses widely to the peacebuilding processes that are inherent in transformative justice approaches, such that an educational culture of nonviolence, empowerment, and flourishing social/cultural/ environmental diversity can replace unsustainable academic systems characterized by technocratic social control, authoritarian repression, and the complex stigmatization of forms of pedagogical dissent.

It is our hope that this text serves as a foundation stone in this regard. Our readers are thus advised that, if such a movement cannot materialize (and soon!) throughout academia, those truly interested in sustainability and the pursuit of knowledge should pursue ways to begin “escaping education” (Prakash & Esteva, 2008) rather than enduring it.

### An Overview of the Chapters

In the essays that follow one will find a good deal of analysis of the history of academic research within a range of the social sciences and humanities, as deemed (by each author) to be relevant to the dream of achieving a more insurgent formation of sustainability studies characterized by “supradisciplinary” (Horkheimer, 1989: 31–32; Kellner, 1989: 7, 44) praxis. Importantly, though not surprisingly, many of the essays in this edited volume reveal that disciplinary constraints upon the diverse types of academic speech required to serve moral progress work to reproduce forms of academic voice that are out of step with our catastrophic scholarly conditions (see similarly Orr, 2009). Still, though the hope for the organizational transformation required for critically “greening the academy” poses a number of dire and dystopic problems to those who would undertake such a project, it must not be forgotten that university life (and the society to which it is dialectically tethered) maintains “objective ambiguity” (Marcuse, 1964). Despite the omnipresence of academic repression<sup>9</sup> for those who would seek to challenge its technical partnership with the “matrix of domination” (Collins, 2000), contemporary higher educational reality should be broadly seen as complex and contested by a variety of forces, rich with alternatives that are immediately present and yet ideologically, normatively, or otherwise blocked from achieving its full realization in service to society (Marcuse, 1972: 13).

*Greening the Academy* thus takes up the challenge to radicalize our social practices and higher educational institutions through the application of new diagnostic critical theories and alternative pedagogies such that unsustainable cultural and political features of academic life are negated, even as progressive tendencies within liberal arts scholarship are articulated and reaffirmed. Notably, this process has been conceptualized as “reconstruction” by progressive educators like John Dewey (1897) and revolutionaries like Antonio Gramsci, who importantly noted that “every crisis is also a moment of reconstruction” in which “the normal functioning of the old economic, social, cultural order, provides the opportunity to reorganize it in new ways” (Hall, 1987). Thus, in the chapters that follow herein,

the book's varied authors were asked to reflect upon possible academic openings for ideological reconstruction in their disciplines in which holistic, affiliated, and practical approaches to systemic socio-ecological problems might be addressed in the context of the present-day university.

Samuel Day Fassbinder begins the anthology with a look at environmental education titled "Greening Education," suggesting that educational efforts could productively focus on the thematic direction provided by three texts: Curry Stephenson Malott's *A Call To Action* (2008), about the redemption of Native American Traditional Ecological Knowledge; John Vandermeer's *The Ecology of Agroecosystems* (2009), an interdisciplinary text bridging sustainable agriculture and political economy, and Margaret Atwood's *Oryx and Crake* (2004) and *The Year of the Flood* (2010), fictional works of speculation into a future of environmental catastrophe.

Piers Beirne and Nigel South then investigate how criminology might productively take up issues of environmental justice as issues of harm toward nature and animals, pitching for a turn in the field that accords with the social, cultural and juridical demands that hail from a radical ecological/animal rights perspective.

In the third chapter, Kishi Animashaun critically examines environmental sociology from a rigorous historical perspective, beginning with Dunlap and Catton's (1979) piece "Environmental Sociology," through its productive grappling with issues of political economy and the social construction of environmental problems. Specifically, Animashaun highlights Shellenberger and Nordhaus's infamous essay "The Death of Environmentalism" and the controversy surrounding it as a measurement of where environmental sociology is today.

With "Greening Political Science," Timothy Luke theorizes the need for an intriguing typology of discourses in political ecology: from environmental justice to critical climatology, ecomodernization to green statism, and natural capitalism to resource managerialism. The difference between a discipline based in critical social theory and one committed to a banal ecogism emerges.

Steven Best's contribution fuses a historical reading of revolutionary environmentalism with a philosophy of liberationist activism to anticipate a movement that promotes "ecological democracy" as opposed to the pervasive barbarism which he believes is likely to be the outcome of corporate domination in this era.

"Greening Economics" has Miriam Kennet and Michelle Gale de Oliveira probe recent developments in mainstream and alternative economies for a descriptive engagement with the analysts of existing economic structures to see how far they will go in advocating for humanitarian change.

An historical critique of the field of geography frames the seventh chapter, in which Donna Houston argues "Environmental determinism—though discredited—created conditions for the 'jettisoning' of nature from geography." She then pushes for geographical research to work compellingly to re-integrate the analysis of nature into its workings, a task she finds as already tentatively underway in the disciplinary discourse.

Eva Swidler's own "Greening History" meanwhile suggests that historians have generally been obtuse to theoretical problems, and that until historians wake up to the critical problems of historical theory, we are not likely to see important progress in environmental history. As an alternative, her essay specifies a "way through" by which history could redeem itself from its insensitivities.

Next, Brian McKenna's brilliant essay contextualizes the history of environmental anthropology in light of the various divisions of the academic discipline of anthropology. On the one hand, he sees these as relating to the ongoing history of primitive accumulation and, on the other, to various attempts to preserve the commons as a social and environmental construct.

In the tenth chapter, "Greening Communication," Tema Milstein surveys a broader history of the concept of "the environment" in communication studies, research which culminates with a recognition of an emergent investigative paradigm: "ecological theory: nature as co-communicant."

Taking up the study of literature, Corey Lewis's poetic piece argues that literature—especially American writing of the 18th, 19th, and early 20th centuries—was instrumental in forming changing attitudes toward the land and environment. The relationship between literature and the broader social and cultural trajectory that has unfolded within the development of modern industrial capitalism and political liberalism is raised for the reader's consideration.

"Greening Dis-Ability," a definitive contribution by book editor, Anthony J. Nocella II, boldly argues for a new paradigm of "ecoability" as a critical-theoretic contribution to sustainability that (at the same time) respects the differently-abled among us.

Finally, with the concluding essay, Greta Gaard's "Greening Feminism" offers a cross-disciplinary, comprehensive history of the contribution of women to the history of environmentalism.

### A Concluding Statement of the Book's Limits and Possibilities

In closing, it remains for us to make a brief accounting of the possibly avoided and hidden curricula of *Greening the Academy* itself. Careful readers will undoubtedly wonder: If it is important to "green" feminist scholarship (or to "green" scholarship by feministing it), and if it is a similarly notable sustainability issue that we challenge the "normalization" of academic life through ecoability frameworks, etc., then is it not equally crucial to specifically highlight in a book such as this the contribution to sustainability education that every type of single-issue identity politics could advance against the myriad of disciplinary antagonisms they face? In short, we agree—while also asserting that sustainability education demands learning to move beyond identity politics as part of a broad-based dialogical alliance for academic reconstruction and social change.

To this end, the authors comprising this book were solicited or chosen with a careful understanding of their ideological locations and approaches, and it is the hope of the editorial team that the book thus blends anti-capitalist, antiracist,

feminist, Queer, and other insurgent standpoints with a plurality of progressive political viewpoints, including those that can be classified as anarchist, socialist, or radically democratic. We did not—after considerable discussion—include a chapter on Native American (or American Indian) Studies, or on the need to indigenize the academy.<sup>10</sup> Arguably, this can be read as a significant limitation. On the other hand, projects such as bringing TribCrit (tribal critical race theory) to bear upon the entire academy, while additionally challenging the compartmentalization or denigration of tribal knowledge on campuses, seemed a particularly immense task for any one author to handle fairly in the limited space that a book chapter could provide. Additionally, we asked the question: Whose purpose would such a chapter serve—the non-idealized struggle of specific Indigenous scholars and peoples or the radical pedagogical dream articulated by the three white editors of this collection? Moreover, considering the long-standing contribution made by universities to furthering the histories of colonization and settler colonization of Indigenous places, we as editors wondered if it was at all just to subsume the topic of academic indigeneity as merely one among many other academic contestations? Would doing so, in other words, be more representative of the “Colonial Model of Education” or a properly “critical interstitial methodology” (on the difference, see Calderón, 2011)?

The cognitive praxis of such deliberations suggests that situations exist, especially when whites are formally situated within positions of leadership, in which some struggles (both academic and non-) within the movement-of-movements must be heard internally on different terms, in different registers, or at different magnitudes in order to properly achieve a collective political ecology based in solidarity. Without hereby calling for a problematic return to the “ranking of oppressions,” then, for this specific project the editors decided that the sovereignty of Indigenous knowledge traditions could best be respected in the manner set before you now. We recognize that this decision may amount to a “strategic essentialism” (Spivak, 1987), and that such essentializing—even if strategic—still runs the risk of silencing, marginalizing, or even further erasing the Indigenous scholars that we would seek here to symbolically stand with. Yet, we cannot emphasize enough that if we are to seriously “green the academy” it means that non-Indigenous scholars must demonstrate a disciplined sensitivity to the dangers for Indigenous peoples that their academic work can help further as historical settler agents, even when such non-Indigenous scholars are themselves self-consciously oppositional as they attempt to negotiate “the teaching machine” (Spivak, 2008) of which they are a part.

Besides questions about the array of cultural and political locations emphasized (or not) within *Greening the Academy*, still other readers will inevitably wonder about why our treatment of the “liberal arts” takes the form of this particular set of disciplines enclosed herein. Why is American literature treated and not Chinese? What about American or Cultural Studies? Where are the natural, physical, and mathematical sciences—aren’t these traditionally conceived of as part of the liberal arts tradition? In fact, the history of the liberal arts reveals that it has never been a merely static curriculum. Rather, the liberal arts have been transformed again and

again during varying periods by a range of educational institutions depending upon perceived institutional and social needs, as well as the understanding of human nature current at the time. Therefore, based on contemporary conditions of unfolding global technocapitalist biopolitics, which would reduce education and ethics to mere investment and security instruments for the unsustainable growth of new economic sectors, we seek to argue here for a renewed critical deliberation on what form the liberal arts can best take today in support of humane futures.

Certainly, the collection of subjects examined within *Greening the Academy* is ultimately tentative, partial, and arbitrary. Still, in our opinion, the freedom not to worry overly much about providing a more definitive list is provided by the emergence of an affiliated literature that also takes up questions concerning the form and goals of a reconstructed academic sustainability curriculum (See, e.g., Wals & Corcoran, 2012; McKenzie et al., 2009; Bartlett & Chase, 2004; Corcoran & Wals, 2004; Jones et al., 2010; Bowers, 2011; McDonald, 2011; Orr, 2010; McGonigle & Starke, 2006; Martin & Samels, 2012; Johnston, 2012; Andrzejewski, 2009; Myers, 2012; and Blewitt & Callingford, 2004). Taken together these texts offer a plethora of methods and educational models for how we might begin to undo harmful disciplinary standards, allow transdisciplinary and complex conversations to emerge from the disciplinary margins, tether academic work to place-based and bioregional cultural work, seriously engage national and international policy related to education for sustainable development, support widespread campus greening, and stimulate proactive types of critical educational leadership within academic administrations.<sup>11</sup> No two books (including our own) provide a congruent disciplinary or curricular template, and readers will find that many of these texts concerned with “greening the academy” include treatments of, or otherwise pitch, for interdisciplinary types of environmental science.

Readers of this volume should understand that in no way is it, its contributors, or its editors, advancing a pedagogical or political position that can be typified as anti-science. We recognize the value of the environmental sciences (broadly conceived) and believe that if we ever are to realize a “green academy” then our colleagues in the sciences must play an important role toward that endeavor by re-integrating with a critical *humanitas* (Marcuse, in Kellner, 2001: 74–76). On the other hand, the dialogical performance of this integration does not happen in the abstract, but rather in the objectively ambiguous conditions of academic domination as this Introduction has set out. Thus, while our purpose in *Greening the Academy* is to critique the liberal arts, we do so in order for them to speak more powerfully back to the environmental sciences such that the liberal arts might provide the moral authority on campuses for institutional reconstruction on behalf of a “new science of the multitude” (Kahn, 2010). In the absence of such, during this Age of the Neoliberal Arts and the Dehumanities, we find the social and humanistic fields are riddled with “science envy” (Agger, 2007)—an affective disorder that is only primed to grow worse the more such fields are marginalized on campus or altogether cut back. Again, what is at stake here is much more than just the self-esteem of the liberal arts. *Greening the Academy* intends the unshackling of the liberal arts once and for all from the oppressively economic

scientism (Margison & Naseem, 2010; Baez & Boyles, 2009) that seeks to define what counts as legitimate academic knowledge and, in this way, culturally reproduces the unsustainable dominant ideology of the global industrial complex.

In summary, then, this book strives to support researchers, students, administrators, and community activists interested in sustainability education work of this order by contributing to the disciplinary archaeology and deconstruction of the social and humanistic sciences from a total liberation standpoint, while also providing a type of critical intervention into the green campus movement that we see as overly concerned with achieving the positive piecemeal reforms of grabbing “low-hanging fruit.” By contrast, at this time, education for sustainability requires a sweeping moral indictment of academic institutions as primary (and knowing) contributors to numerous historical crimes against humanity and the rest of the planetary community. If there is an apple that we must bite, then it is this.

## NOTES

- <sup>1</sup> According to her biography, in her role as Under Secretary, “Kanter reports to Secretary of Education Arne Duncan and oversees policies, programs, and activities related to postsecondary education, adult and career-technical education, federal student aid, and five White House Initiatives on Asian Americans and Pacific Islanders, Educational Excellence for Hispanics, Historically Black Colleges and Universities, Tribal Colleges and Universities, and Faith-Based and Neighborhood Partnerships.” See: <http://www2.ed.gov/news/staff/bios/kanter.html>.
- <sup>2</sup> The Sustainability Tracking, Assessment & Rating System created by the Association for the Advancement for Sustainability in Higher Education (see <https://stars.aashe.org/>).
- <sup>3</sup> This is the agenda proffered by the leading sustainability education non-profit, Second Nature, founded by Sen. John Kerry, Teresa Heinz, and Dr. Anthony Cortese in 1993. See <http://planetforward.org/idea/introducing-second-nature-transforming-higher-education-for-a-sustainable-society/>. For our purposes here, the organization’s name is a precious conceit that connotes the ideal work of *humanitas*—the use of education to improve both naturally given matter and manner.
- <sup>4</sup> While the notion of “a standpoint” did not originate in feminist scholarship, we use the language here very much in line with its treatment in *The Feminist Standpoint Theory Reader* (Harding, 2003).
- <sup>5</sup> For a compelling example of how militant research into the problem of sustainability might be conducted outside of academic disciplines, see Best & Nocella, 2006.
- <sup>6</sup> See <http://www.epa.gov/region1/assistance/univ/vio.html>.
- <sup>7</sup> Some additionally argue that this list includes women, children, the elderly, and other groups still.
- <sup>8</sup> However, pollution is not the *only* thematic point for productive organization. For a treatment organizing the dialectics of justice in education around the plethora of issues related to human exceptionalism, see Lewis & Kahn (2010).
- <sup>9</sup> On the ubiquitous academic repression of critical scholars and activists, see the startling collection of accounts in Best et al. (2010).
- <sup>10</sup> However, this is a key concern for and pillar of ecopedagogy. See, for instance, Fassbinder (Ch. 1) and Kahn (2010).
- <sup>11</sup> It goes beyond the work of this text to critically and comparatively evaluate these books in order to highlight contradictions, limitations, and possible alliances in approach. It goes without saying that this is an important *next step* for work in this area. *Greening the Academy*’s contribution, besides offering curricular data, is to singularly challenge the approach to sustainability in academia that stops short of a supradisciplinary movement and which delimits “sustainability” overly much as related to issues of facilities management, scientific and technological literacy, and business innovation, while failing to understand it first and foremost as a humanization concern requiring justice, liberty, and the interrogation of the many ways in which academe furthers the domination of nature.

## REFERENCES

- Agger, B. (2007). *Public Sociology*. Lanham MD: Rowman and Littlefield. 2nd ed.
- Andrzejewski, J., Baltadano, M. P., & Symcox, L. (2009). *Social Justice, Peace, and Environmental Education: Transformative Standards*. New York: Routledge.
- Baez, B., & Boyles, D. (2009). *The Politics of Inquiry: Education Research and the Politics of Science*. Albany, NY: SUNY Press.
- Bartlett, P., & Chase, G. (2004). *Sustainability on Campus: Stories and Strategies for Change*. Cambridge, MA: MIT Press.
- Baudrillard, J. (2009). *The Transparency of Evil: Essays on Extreme Phenomena*. New York: Verso Books.
- Beringer, A., & Adombent, M. (2008). Sustainability in Higher Education Research. *Environmental Education Research*, 14(6), pp. 607–623.
- Best, S., Kahn, R., Nocella II, A. J., & McLaren, P. (2011). *The Global Industrial Complex: Systems of Domination*. Lanham, MD: Lexington Books.
- Best, S., & Nocella II, A. J. (2006). *Igniting a Revolution: Voices in Defense of the Earth*. Oakland, CA: AK Press.
- Best, S., Nocella II, A. J., & McLaren, P. (2010). *Academic Repression: Reflections from the Academic Industrial Complex*. Oakland, CA: AK Press.
- Blewitt, J., & Callingford, C. (2004). *The Sustainability Curriculum: The Challenge for Higher Education*. New York: Routledge.
- Bowers, C. A. (2011). *University Reforms in an Era of Global Warming*. Eugene, OR: Eco-Justice Press.
- Calderón, D. (2011). Locating the Foundations of Epistemologies of Ignorance in Education Theory and Practice (pp. 105–128). In E. Malewski & N. Jaramillo (Eds.), *Epistemologies of Ignorance in Education*. Charlotte, NC: Information Age Publishing.
- Collins, P. H. (2000). *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*. New York: Routledge.
- Corcoran, P. A., & Wals, A. E. J. (2004). *Higher Education and the Challenge of Sustainability: Problematics, Promise and Practice*. Netherlands: Kluwer Academic.
- Darder, A. (2011). *A Dissident Voice: Essays on Culture, Pedagogy and Power*. New York: Peter Lang.
- Dewey, J. (1897). My Pedagogic Creed. *The School Journal*, 54.
- Fassbinder, S. D. (2008). Capitalist Discipline and Ecological Discipline. *Green Theory & Praxis*, 4(2).
- Giroux, H. (2007). *The University in Chains: Confronting the Military-Industrial-Academic Complex*. Boulder, CO: Paradigm Publishers.
- Greenwood, D. A. (2010). Education in a Culture of Violence: A Critical Pedagogy of Place in Wartime. *Cultural Studies of Science Education*, 5, pp. 351–359.
- . (2008). A Critical Pedagogy of Place: From Gridlock to Parallax. *Environmental Education Research*, 14(3), pp. 336–348.
- Gruenewald, D. A. (2003). The Best of Both Worlds: A Critical Pedagogy of Place. *Educational Researcher*, 32(4), pp. 3–12.
- Hall, S. (1987). Gramsci and Us. *Marxism Today*, (June), 19.
- Harding, S. (2003). *The Feminist Standpoint Theory Reader: Intellectual and Political Controversies*. New York: Routledge.
- Hill, D., & Boxley, S. (2007). Critical Teacher Education for Economic, Environmental and Social Justice: An Ecosocialist Manifesto. *Journal for Critical Education Policy Studies*, 5 (2). Retrieved from <http://www.jceps.com/index.php?pageID=article&articleID=96>.
- Horkheimer, M. (1989). *Traditional and Critical Theory in Critical Theory: Selected essays*. New York: Continuum.
- Illich, I. (1991). Text and University: On the Idea and History of a Unique Institution. A translation by Lee Hoinacki of the keynote address delivered at the Bremen Rathaus, September 23, 1991. Retrieved from [http://www.davidtinapple.com/illich/1991\\_text\\_and\\_university.PDF](http://www.davidtinapple.com/illich/1991_text_and_university.PDF).
- Johnston, L. F. (2012). *Higher Education for Sustainability: Cases, Challenges, and Opportunities from Across the Curriculum*. New York: Routledge.

- Jones, P., Selby, D., & Sterling, S. (2010). *Sustainability Education: Perspectives and Practice Across Higher Education*. London: Earthscan.
- Kahn, R. (2010). *Critical Pedagogy, Ecoliteracy, and Planetary Crisis: The Ecopedagogy Movement*. New York: Peter Lang.
- Kellner, D. (2001). *Herbert Marcuse: Towards a Critical Theory of Society. Collected Papers of Herbert Marcuse, Volume Two*. New York: Routledge.
- . (1989). *Critical Theory, Marxism and Modernity*. Oxford: Polity Press.
- Koester, R. E. (2006). Beyond Disciplines: Integrating Academia, Operations, and Community for Campuswide Education for Sustainability. In R. & Farrant (Ed.), *Inside and Out*, pp. 41–61. Amityville, NY: Baywood Publishing Company.
- Lewis, T., & Kahn, R. (2010). *Education out of Bounds: Reimagining Cultural Studies for a Posthuman Age*. New York: Palgrave Macmillan.
- Marcuse, H. (1972). *An Essay on Liberation*. Harmondsworth, PA: Penguin.
- . (1964). *One-dimensional Man*. Boston, MA: Beacon Press.
- Margison, E. H., & Naseem, A. (2010). *Scientism and Education: Empirical Research as Neo-liberal Ideology*. New York: Springer Publishing Co.
- Martin, J., & Samels, J. (2012). *The Sustainable University: Green Goals and New Challenges for Higher Education Leaders*. Baltimore: Johns Hopkins University Press.
- McDonald, T. (2011). *Social Responsibility and Sustainability: Multidisciplinary Perspectives Through Service Learning*. Sterling, VA: Stylus Publishing.
- McLaren, P., & Houston, D. (2005). Revolutionary Ecologies: Ecosocialism and Critical Pedagogy. In P. McLaren, *Capitalists & Conquerors: A Critical Pedagogy Against Empire*. Lanham, MD: Rowman & Littlefield.
- M'Gonigle, M., & Starke, J. (2006). *Planet U: Sustaining the World, Reinventing the University*. Gabriola Island, BC: New Society Publishers.
- McKenzie, M., Hart, P., Bai, H., & Jickling, B. (2009). *Fields of Green: Restoring Culture, Environment and Education*. New York: Hampton Press.
- McLaren, P. (2012). Objection Sustained: Revolutionary Pedagogical Praxis as an Occupying Force. *Policy Futures in Education*, 10(4), pp. 487–494.
- Myers, W. A. (2012). *Sustainability in Higher Education: Best Practices, Trends and Obstacles Impacting Champions of Sustainability on College Campuses*. Unpublished Dissertation. Prescott, AZ: Prescott College.
- Nocella II, A. J. (2011). *A Dis-Ability Perspective on the Stigmatization of Dissent: Critical Pedagogy, Critical Criminology, and Critical Animal Studies*. Unpublished Dissertation. Syracuse, NY: Syracuse University.
- Orr, D. (2010). *Hope is an Imperative: The Essential David Orr*. Washington, DC: Island Press.
- . (2009). *Down to the Wire: Confronting Climate Collapse*. Oxford: Oxford University Press.
- Pierce, C. (2013). *Education in the Biocapitalist Era: Optimizing Students for a Flat World*. New York: Palgrave Macmillan.
- Prakash, M., & Esteva, G. (2008). *Escaping Education: Living and Learning Within Grassroots Cultures*. 2nd ed. New York: Peter Lang.
- Posner, B., Kempner, K., Marginson, S., & Ordorika, I. (2011). *Universities and the Public Sphere: Knowledge Creation and State Building in the Era of Globalization*. New York: Routledge.
- Shukaitis, S., Graeber, D., & Biddle, E. (2007). *Constituent Imagination: Militant Investigations, Collective Theorization*. Oakland, CA: AK Press.
- Slaughter, S., & Rhoades, G. (2009). *Academic Capitalism and the New Economy: Markets, State, and Higher Education*. Baltimore: Johns Hopkins University Press.
- Spivak, G. C. (2008). *Outside in the Teaching Machine*. New York: Routledge.
- . (1987). *In Other Worlds: Essays in Cultural Politics*. New York: Taylor and Francis.
- Wals, A. E. J., & Corcoran, P. (2012). *Learning for Sustainability in Times of Accelerating Change*. Wageningen, The Netherlands: Wageningen Academic Publishers.



# GREENING EDUCATION

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## INTRODUCTION

Environmental education in all eras has taught about the natural world: the passing on of knowledge about nature is what has counted as education over most of the human race's 200,000-year existence. "Environmental education" is, however, a term now connected to the relatively recent birth of environmentalism, and of the perception of environmental problems: Joy A. Palmer's *Environmental Education in the 21st Century* suggests that environmental education began on a global level with the 1968 UNESCO Biosphere Conference, in Paris, which "called for the development of curriculum materials relating to studying the environment for all levels of education, the promotion of technical training, and the stimulation of global awareness of environmental problems." (p. 5) Environmental education's modern being coincides, then, with environmentalism's modern being: Ramachandra Guha (*Environmentalism: A Global History*) tells us that "the environmental movement is a child of the sixties" (p. 1). Much of this "birth" is typically traced to the explosive appearance of Rachel Carson's *Silent Spring* in 1962 and of the first Earth Day and of the beginning of the Environmental Protection Agency in 1970, each of which, as events, increased the popular perception that there were such things as environmental problems.

The term "environmental education" is in fact a broad, general term that could encompass practically any learning process. "The environment" is where we live: it encompasses the whole world, and not just the outdoors; "education" encompasses practically any process of teaching and learning, and we are learning all the time. This modern definition of "environmental education," however, comes into being with a recent increase in the scale of what are called "environmental problems."

Our present-day desperation as regards environmental problems demands a form of environmental education which would prompt solutions, both in terms of dealing with the physical manifestations of pollution, depletion, climate change and so on, and in terms of the social structures which underlie environmental problems. Toward this end, the idea of "cognitive praxis," a term suggested by Richard Kahn in his book *Critical Pedagogy, Ecopedagogy, and Planetary Crisis*, deserves examination. The term "praxis," as used in this context, suggests Karl Marx's concept of "practical-critical activity," or the educator Paulo Freire's idea of "reflection and action upon the world in order to transform it" (p. 36). "Cognitive praxis" is a form of teaching and learning which contributes to praxis, to practical (essentially problem-solving)

activity that embodies a critique of society. Kahn develops “cognitive praxis” in tandem with “ecopedagogy,” a movement combining the philosophies of teaching of the critical pedagogy movement (specifically of Paulo Freire but engaging other educators as well) with the urgency of an environmental education dedicated to the current environmental crisis.

In his book, Kahn suggests that a “cognitive praxis” is an attempt to teach society about the environment, to inspire both thought and action (“praxis”) such that environmental problems can be solved. “Cognitive praxis,” then, is an expansion of the realm of knowledge and action, to put humanity as a whole in service of the goals of environmentalism. Kahn defines it as follows:

Environmental movements engage pedagogically with society, with their own membership, and with other movements. They thereby generate theories, new strategic possibilities, and emergent forms of identity that can be accepted, rejected, or otherwise co-opted by dominant institutional power. This, then, is what can be called the collective cognitive praxis of disparate environmental movements... (p. 27)

Kahn holds out “cognitive praxis,” then, as a tool for social change in light of the present-day ecological crisis:

Part of the development of cognitive praxis is to wage transformative campaigns on behalf of (innovative) thoughts and practices, and to attempt to march through all manner of social institutions with them, especially those overtly concerned with the function of education. (p. 27).

Given such a definition and such a motivation, then, we can expect that, as anxiety over environmental crises (perhaps specifically abrupt climate change) increases, a wide variety of attempts at “cognitive praxis” will be tried toward environmental solutions. Clearly, a multitude of changes in social practice, resulting in an overall transformation of world-society, will be needed to overcome the ecological crisis. This essay will suggest possibilities for “cognitive praxis,” specifically in college-level education, in reflections upon environmental education in the past and the present, and in anticipation of what it might be in the future.

In Kahn’s discussion of “cognitive praxis” there is a prominently-placed suggestion of the “long march through the institutions,” a reference to Marcuse (*Counterrevolution and Revolt*, page 55). The suggestion is that an open engagement with social institutions will be necessary in order to transform the logic of the system as a whole, and thus to solve environmental problems. In this light, colleges and universities are importantly positioned as places of academic freedom and of the preparation of young adults for existence within present-day social structures. There is also a tradition of collegiate activism to which the expected audience for this essay, professors, students, and other participants in college life, might hope to contribute.

Vital to the pursuit of effective cognitive praxis is an engagement with society’s existing institutional structures. Put more straightforwardly: the overall organization

of society needs to be examined if overall environmental problems are to be solved. This can be conceptualized in an academic sense in terms of political economy. Two principles guide a political economy analysis of environmental problems: 1) from Saul Alinsky's *Rules for Radicals*: "The basic requirement for the understanding of the politics of change is to recognize the world as it is" (p. 12) and 2) Kees van der Pijl's definition, "(Global) Political Economy refers to those approaches to analysing world society which seek to overcome the disciplinary divisions of social science" (p. 1). The van der Pijl definition may seem fairly abstract, but will become important in light of the problems encountered by cognitive praxis in the context of academic life. One's right to participate in a university or college is often constrained by one's affiliation with a "discipline" or "field," in the sense of having a major, or by the name of the department granting one's graduate degrees or tenure-track position – but it's important that disciplinary divisions not interfere with cognitive praxis.

In summary, if environmental education is to adopt any form of cognitive praxis it needs to remain as education while at the same time opening doors to new manifestations of activist participation in the "world as it is." Toward this end, an effective cognitive praxis at the college/university level must offer an open discussion of our relation to existing structures of political economy. As Peter McLaren (2005) argues, "humans are conditioned by structures and social relations just as they create and transform those structures and relations" and so the language of political economy is useful in discussing structures and social relations as such. Or, as McLaren asks more polemically, "do we know whose hands ground the capitalist lenses through which we comprehend the world and do we know from whence came the bloodstains on the lens grinder's workbench?" (p. 9)

The ultimate aim of classroom discussion about the political economy of the "real world" is going to be diverse – Kahn makes that clear with his emphasis (above) upon the "generat(ion of) theories, new strategic possibilities, and emergent forms of identity" (p. 27). Ultimately, however, an educational cognitive praxis would pry open for examination what Cornelius Castoriadis called the "social imaginary." The social imaginary is the set of symbolic ingredients for our construction of social existence. Cognitive praxis uses the social imaginary, as such, as a terrain for activist struggle, through its manifold and diverse representation of alternatives to the current way of life.

Environmental education authors Charles Saylan and Daniel T. Blunstein have recognized much of what is stated above, and their recent (2011) book *The Failure of Environmental Education and How We Can Fix It* reflects this. Saylan and Blunstein start from a deep concern about environmental problems, and enthusiastically embrace a discussion of society and social behaviors. The first sentence of Chapter One of their book sets a tone: "Environmental education has failed to bring about the changes in attitude and behavior necessary to stave off the detrimental effects of climate change, biodiversity loss, and environmental degradation that our planet is experiencing at an alarmingly accelerated rate." (p. 1) So the human race must

change its behaviors, and environmental education can be assigned the task of teaching the wisdom to know how. The question prompted by this pronouncement is one of “how can educators do this?” Later in the book, the authors advocate a specifically activist pedagogy to fix environmental education:

We think environmental education should develop an informed and thereby active citizenry, but we realize that this will not be accomplished solely by incorporating environmental education curricula into national teaching standards. Instead, the tenets of individual responsibility, development of community, social engagement, and appreciation of nature will have to permeate educational systems at all levels. (p. 174)

Advocates of cognitive praxis would welcome Saylan and Blumstein’s proposal as a positive development. The questions they would have about “development of community” and “social engagement,” though, would be ones of whether or not environmental education can address the immediate needs of working people, of whether or not it can do more with social engagement than lobby Congress for measures without “political traction,” and if it can or can’t dislodge the economic and political interests that stand in its way. Saylan and Blumstein’s book starts an important (though unfinished) discussion in political economy.

An important starting point for the self-understanding of environmental educators wishing to practice “cognitive praxis” (in the North American context) is reflection upon the past, and specifically upon traditional ecological knowledge as advanced by Native American peoples. In bringing this wisdom to the present moment, however, it must be placed in the context of their conquest and assimilation in the history of the expansion of the United States. Environmental educators can effectively appropriate traditional ecological knowledge, but not on the grounds of continuing imperialism. Also important to the history of environmental education is the “nature study” movement of early 20th century America, the most significant movement of the prehistory of environmental education, and in discussing it I will touch upon practices of “playing Indian” it adopted, out of some felt need to imitate America’s possessors of traditional ecological knowledge. An alternative path to “playing Indian” for present-day audiences is suggested by the politically-engaged, “of the land” pedagogy of Curry Stephenson Malott as depicted in his book *A Call To Action*.

Cognitive praxis in environmental education must also look for openings within present-day social structures. In the context of present-day college/ university work, the science of agroecology offers promise in that it combines the human realm of necessity, as addressed in food production through agriculture, with a wholistic scientific understanding of nature, as addressed in ecology. Agroecology education offers the academic study of sustainability beyond the unsustainable structures of political economy that currently rule the land. Moreover, agroecology education offers opportunities to apply traditional ecological knowledge to modern ecological dilemmas while at the same time addressing political economy.

Given the uninhibited trends of industrialization and capital accumulation, future attempts at cognitive praxis will have to contend with an environment significantly more challenging than that of previous eras. Contemplation of the future of the environment, which is to say the future, will require that we open a social imaginary – which for the future means the symbolic register of the dominant trend, the governing concepts of where we are headed as a world-society. Of relevance to acts of questioning the dominant trend as such are Margaret Atwood’s novels *Oryx and Crake* and *In The Year Of The Flood*. Atwood’s novels speculate about a world in which ecological knowledge has been forgotten and the gossip of consumer life substituted in its place. In Atwood’s speculative world, what is left of ecological knowledge has been gathered up as bits and fragments of a “past” by a religious cult. The central event of both of these novels is depicted as an ultimate instrumentalization of the world – an attempt by one person to put an end to the human race and to substitute in its place a “perfected,” genetically-engineered, new human species. Atwood asks us to imagine what kind of ecological decisions we would make if we were to have to live in such a world.

In one sense it could be argued that the historical beginnings of environmental education were in the wisdom passed down from elders in traditional societies, for much of that wisdom is what we today call “traditional ecological knowledge.” Today, however, traditional ecological knowledge is integrated into frameworks that its preindustrial sponsors would not recognize. While the metabolic rift between society and nature has never been as wide as it is today, the goal of sustainability today can be spelled out more clearly than ever in a vision of a post-capitalist world in harmony with Earth’s ecosystems substrate.

#### BORROWING FROM THE PAST: A PEDAGOGY OF UNITY

The past, present and future are all of course locations in time; but when we deal with them cognitively, as aspects of cognitive praxis, they are part of the social imaginary. Past, present, and future exist in the symbolic realm as ingredients for our construction of social existence, and as such, past, present and future are contested terrains of activist struggle.

Each of these temporal concepts puts a distinctive stamp on life. The real-life past is lost to us forever; we reconstruct it through historical documentation and unearth its clues in archaeological digs, but it remains a contested zone: “what happened back then” is partially forgotten, and partially reshaped, to meet present-day needs. The present moment is the location of our direct experience, our time of living, the site of our struggles. The future is conceived as a speculation, using terms borrowed from the present.

As far as environmental education is concerned, the debate about the past is a debate about traditional “environmental education,” which is to say, education before it was called “environmental” and supplemented with industrial/consumer society’s concern with environmental problems. As the past is a terrain of appropriation by

the present, the question at hand in the North American context is that of whether traditional First Nations practices can be made congruent with “environmental education,” and made to solve environmental problems. The discussion about this was dramatized effectively by Shepard Krech III’s (1999) book *The Ecological Indian*, which claimed an assessment from a conservationist perspective upon a number of historic First Nations practices. Krech gives the natives of North America a mixed review: he can find some native practices which count as conservation, and others which don’t.

Whatever else the debate about the “ecological Indian” was about (Krech, also Harkin and Lewis), it was really about the relationship between the settler society of the late 19th and early 20th century (Euro-)America, as it eventually developed concepts of “ecology” and “conservation,” and the various First Nations societies, whose traditional practices are then later evaluated as “traditional ecological knowledge” long after they have been subjected to conquest and assimilation. Perhaps not all traditional practices of First Nations societies count as “ecological” – but nevertheless traditional ecological knowledge was the beginning of “environmental education.” In having to cope with the natural world, earlier peoples had to be educated about their environments, whereas modern consumers in mass industrial society live in architectural and technologized communication complexes that substitute consumer convenience and instrumental relationships (both to society and to nature) for knowledge of the land once regarded as essential to survival. Traditional ecological knowledge is useful as a subject of present-day environmental education because its users had to “live outdoors” in a way in which present-day human beings don’t.

In the settler society that subjected Native Americans to conquest and forced assimilation, the first important mainstreaming of environmental education was the “nature study movement,” and it was this movement which provided us with many of our current motivations for pursuing environmental education. The “nature study movement,” as depicted in Kevin Armitage’s brilliant (2009) book *The Nature Study Movement*, was largely an educational movement that attempted to educate young children about nature through simple versions of outdoor study – birdwatching, for instance, or gardening or animal husbandry. It flourished in the Progressive Era of American history, in the first quarter of the 20th century. Its advocates typically recommended outdoor education for young people (typically in elementary schools) as an antidote to the corrupting effects upon character of industrial life. As Liberty Hyde Bailey suggested in his book “The Nature Study Idea,” the point of the nature study movement was to “enable every person to live a richer life, whatever his business or profession may be” (p. 4). The nature study movement also borrowed liberally from child-centered, progressive education in the Progressive Era.

Indeed, readers can observe that even before the nature study movement there were the beginnings of a concept of environmentalism concerned with environmental problems. Most famously, George Perkins Marsh’s *Man and Nature*, published

in 1864, greatly advanced the idea that conservation would be necessary if human beings were not to destroy their environmental substrates. Moreover, as Armitage repeatedly points out, the nature study movement was motivated by conservationist impulses throughout its history.

However, I think that it's meaningful to look at environmentalism as Joan Martinez-Alier (2002) does, as divided into three currents: (1) the cult of wilderness, engaged primarily in the "defence of immaculate nature" (p. 1), (2) the gospel of eco-efficiency, which has translated today into the movements for "sustainable development" and "ecological modernization" (p. 5), and (3) environmental justice and the environmentalism of the poor, concerned largely for the "material interest in the environment as a source and a requirement for livelihood; not so much a concern with the rights of other species and of future generations of humans as a concern for today's poor humans" (p. 11). One can see in the nature study movement the beginnings of the first two currents, whereas what society needs today is participation in the third current – people who are concerned with the environment not because it's wilderness in need of preservation, nor because the capitalist system needs improved management, but rather because they live there, and want to continue to do so. The environmentalism of the poor, then, was the First Nations contribution to the history of environmental education in North America.

Interestingly enough, one part of the nature study movement, insofar as it promoted outdoor education, engaged practices of "playing Indian," and thus from the beginnings of environmental education there was a certain appropriation of the images of the knowers of traditional ecological knowledge. As Armitage points out, a number of educators of the early 20th century thought that, for children, "playing Indian" would be a good antidote to the ills of modern life: they also imagined that "playing Indian" would recapitulate the stages of human development, from savagery to civilization, as depicted by the racialist anthropologies of that time.

The practice of "playing Indian" may have been a sideshow of the nature study movement – but its popularization along with nature study highlights what was missing from nature study; a confrontation with colonialism, with the ways in which the descendants of Europeans colonized North America, conceptualized as an imprint upon the land. The history of "playing Indian" reveals that "Indian," like "nature," was the obverse face of conquest in the colonial imaginary of the American consciousness. The Boy Scouts, for instance "played Indian," and this allowed them to reinforce notions of European superiority: "by emulating Natives, boys reenacted the stages of progress outlined earlier in the century by Morgan and echoed by Turner, thus ironically affirming racialized conceptions of social development and their own superiority." (Huhndorf, p. 74)

One of the most prominent advocates of "nature study" through "playing Indian" was Ernest Thompson Seton, who indeed imagined "playing Indian" as a developmental stage for little boys. Seton, a Canadian and one of the cofounders of the Boy Scouts of America, identified "playing Indian" with what he called "woodcraft," which incorporated a number of different outdoor skills. Seton's

(1903) juvenile novel *Two Little Savages* lays out Seton's plan: in the novel, the boy protagonists make a wigwam, a teepee, a peace pipe, bows, arrows, a war bonnet, and an "Indian drum." The flip side of Seton's romanticization of "playing Indian" was the ethic of Daniel Carter Beard, who (as member of the Boy Scout bureaucracy) promoted outdoor skills through the romanticization of Euro-American pioneers, of Daniel Boone and Davy Crockett.

As full, published books, two important historical commentaries on "playing Indian" are Philip J. Deloria's (1998) *Playing Indian*, and Shari M. Huhndorf's (2001) *Going Native*. Deloria sums up the problem with "playing Indian" as follows: "the ways in which white Americans have used Indianness in creative self-shaping have continued to be pried apart from questions about inequality, the uneven workings of power, and the social settings in which Indians and non-Indians might actually meet" (p. 190). One can see this even more vividly in the practices of New Age hucksters who sell cheap versions of Native American spirituality today. But here we are actually concerned with the integration of "playing Indian" into nature study, as an object lesson about forms of environmental education which don't critique the colonial/capitalist context in which they are embedded.

Nature study in the Progressive Era as a whole was an educational reaction to an era of growing industrialization in which the remaining political threat to white, European-ancestry hegemony posed by the First Nations peoples had been somewhat recently been neutralized, and in which the actual progeny of First Nations people were being deprived of their cultural heritages in BIA schools. It took refuge in innocuous images of nature, and went forth to study the environment. Some of the promoters of nature study used "Indians" as images of an idealized past in order to make child's play of them, to teach the progeny of European ancestry the values of outdoor life. The preponderance of nature study literature is innocuous: a gander through Anna Botsford Comstock's (1911) *Handbook of Nature Study for Teachers and Parents* would find a good deal of simple discussion about animals, plants, minerals, the land and sky. Or for further innocuous reading one could peruse the book Seton published just before *Two Little Savages: Wild Animals I Have Known* (1898) tells (in Seton's juvenile-fiction prose style) the life-stories of a gray wolf, a crow, a cottontail rabbit, a dog, a fox, a jackal, and a partridge, most of whom Seton gave pet names.

The examples of "playing Indian" in Armitage's book on nature study also point to a greater truth about the nature study movement and about environmental education in general. The modern sense of environmental education is a rediscovery, faux or real, of a natural world left behind by industrial society, and in its prehistory in the nature study movement we can see how "environmental education" (in the modern sense) became a byproduct of the colonization and exploitation of the land and of human beings under conditions of capitalist industry. Indeed, traditional ecological knowledge can be validated by its integration into what is today called "natural resource management" (see e.g. Menzies (2006)) for a variety of applications) – historical societies have left behind practices which still prove useful in the maintenance of the heritage of a

livable planet Earth under industrial conditions.<sup>1</sup> The educational value of the Native American past in the history of North America, however, extends beyond bits of knowledge (e.g. “woodcraft), to the history of peoples who “lived outdoors” (rather than on technological-industrial landscapes) and who did what they could with the “native science” they gained therein. The real question for environmental educators, however, is one of whether or not in going “back to nature,” as the nature-study advocates did, they can (or can’t) get past the industrialist/colonial/capitalist visions of environmentalism and position themselves to demand environmental justice.

Chapter 4 of Kahn’s book, titled “Organizational Transformation as Ecopedagogy: Traditional Ecological Knowledge as Real and New Science,” makes the admirable case that

ecopedagogy works strategically for (traditional ecological knowledge) to be taught unabashedly as science in order to achieve a redistribution of “the cognitive and social benefits of scientific and technological changes” (Harding, 1998, p. 168) along more equitable and sustainable lines, while also reducing the sociocultural and environmental costs often brought on by the introduction of such changes. In so doing, ecopedagogy supports transformative research into who is excluded from the canons of sustainability scholarship, the methods it undertakes, and the normative sociopolitical frameworks of WMS (“Western modern science”) generally. (p. 106–107)

Having established the possibility, then, of an ecopedagogy which could teach what Gregory Cajete (2000) calls “native science,” Kahn then proceeds in his narrative to a rather advanced discussion of his chosen example of traditional ecological knowledge, the Peace Camp at the Nevada Test Site. Kahn’s narrative brings the reader to a realization of the ultimate political value of projects such as the Peace Camp; here it is important to identify a set of cognitive praxes that can integrate traditional ecological knowledge.

The starting point for Native American cognitive praxis should be the core vision of “native science,” in a form which can be adapted to the present, industrialized, situation as a foundation for long-term land stewardship. With an eye toward political economy, in this core we can identify concepts such as communal land use (as opposed to private property), respect for nature (as opposed to “natural resources” philosophy), and local sovereignty (as opposed to “global governance” in the service of empire). The power of this vision derives from a history of conquest and colonization in which Native American concepts of land are seen as having been displaced. From Jace Weaver’s essay “Notes from a Miner’s Canary”:

When Europeans came to the Western hemisphere, they deposed communal Native notions of land. Though systems varied from tribe to tribe, in general land was considered a common resource, available for all. George Barnaby (Dene) speaks of the rationale for such a system and captures the essence of many Native beliefs about the earth when he says, “Our life is part of the land.

We live on the land and are satisfied with what we get from it. No one person owns the land, it belongs to all of us. We choose where we want to go and our choice is respected by others whether in the settlement or in the bush. We have no word in our language that means wilderness, as anywhere we go is our home. (19)

Thus Weaver, and Barnaby whom he quotes, spell out a Native American land ethic. Readers can see the power of this sort of vision in light of the stock notion, made into the lyric of a Joni Mitchell song, that “you don’t know what you’ve got ‘til it’s gone.” The core of this knowledge, however, has to be adapted to the the present day, of a world characterized by empire in decline and by the continuing spread of capitalist discipline over planetary society and nature. Curry Stephenson Malott’s *A Call To Action* suggests one way of restoring a pedagogy of Native American ecological knowledge, toward cognitive praxis in environmental education.

At first glance Malott’s book appears as an unlikely candidate for environmental education. It advertises itself as a text in cultural studies dealing with Native Americans, and might also be suitable for upper-division or graduate education classes. In short, the modern university can easily marginalize it. A large portion of its content is concerned with retelling the history of domination and colonization to which native peoples in North America have been subjected. It is, however, organized around a pedagogy that is “endowed with a land-centered revolutionary consciousness” (p. 90). Malott points to traditional knowledge, for instance, of the native peoples of the Pacific Northwest and of how they were able to manage the salmon population in their areas through “ancient fishing practices that protected the natural balance of the land and its ecosystems” (p. 95) before the invasion of settlers of European origin. He continues the narrative by discussing how legal battles in the current era are informed by the reuse of traditional knowledge as possessed by tribal elders (p. 102).

Malott also endorses revolutionary critical pedagogy, as voiced by Peter McLaren, as a means of recognizing this history and of humanizing oneself against the debilitating effects of the colonization and predation which came before the current era and which continues in different guises to this day. He chooses, as an example of native peoples who are today resisting the system, the Zapatistas of Chiapas, prizing their radical democracy, their cultural diversity, and their anticapitalism as appropriate to struggles against the sort of domination that has (from our perspective) waged war against Indigenous visions of ecological sustainability.

Malott’s text offers specifically a pedagogy of unity. Not only does it extend outside of the past of North America’s native peoples, but it also engages populations outside of the existing First Nations peoples. The author quotes approvingly of Winona LaDuke:

I would argue that Americans of “foreign” descent must become Americans. That is not to become a patriot of the United States, a patriot of the flag, but a patriot of the land of this continent... You were born here, you will not

likely go away, or live anywhere else, and there are simply no more frontiers to follow. We must all relearn a way of thinking, a state of mind that is from this common ground... if we are in this together, we must rebuild, redevelop, and reclaim an understanding/ analysis which is uniquely ours. (p. 89)

Thus in attempting to enact what Martinez-Alier calls “the environmentalism of the poor,” it becomes an open question of activism, and of pedagogy, of how to create coalitions around what Malott calls “Indigenous resistance” (p. 73). Above all, Malott urges us to think clearly without fear of philosophy, and to see clearly without shrinking from the conditions of the world as it is.

#### Environmental Education Now: Agroecology as College Ecopedagogy

David W. Orr’s (1996) contribution to the ancestor volume to this one (*Greening the College Curriculum*) gives a set of institutional reasons for the failure of today’s universities to address the ecological crisis. They are, in brief:

1. The dominant belief in technical progress in universities has meant that university research has often failed to recognize dangerous aspects of technology.
2. An obsession with departmentalization and specialization has dominated curricular organization within universities.
3. Universities have become expensive places to attend, thus creating an increased emphasis upon fundraising and corporate dependence.
4. University administrations have not shown leadership in addressing the ecological crisis. (Orr pp. 9–12)

Orr’s critique of university education points to the fact that we might look for cognitive praxis in university education in its margins, in places within the university outside of its dominant institutional frameworks. Curry Stephenson Malott’s *A Call To Action*, for instance, will receive its biggest audience in departments of education, as typically marginalized by universities.<sup>2</sup>

In *Critical Pedagogy, Ecoliteracy, and Planetary Crisis*, Richard Kahn criticizes environmental studies, as such, for having been institutionalized as a “hard science” specialization within the modern university:

Even the field’s new nationwide professional society, the Association for Environmental Studies and Sciences...emphasizes the centrality of physical and biological science to environmental studies issues. (p. 104)

We can expect environmental education – especially at the university level – to follow suit in many places, as being about the teaching of a hard-science perspective upon “nature” without much reflection upon the diversity of possible changes in the human social arrangement and how these would change our relationship to “nature.” Thus an appropriately marginal place for cognitive praxis in university education would be agroecology education. Now ecology is itself an “interdisciplinary

discipline,” which combines various sciences in regard for the whole of nature, and avoids the instrumental specialization typical of hard-science disciplinary research. Typically, however, the problem with ecology as a “hard science” is that it does not consider human beings as existing within ecosystems, and so the social sciences tend to be overlooked in ecological analysis. Agroecology, as a subset of ecology, can be an exception to this general observation: agroecology combines a practical art, agronomy, with a hard science, ecology, to discover or invent measurable forms of sustainable agriculture. Agroecology, moreover, is qualitatively different from other fields in which the term “sustainability” is used (e.g. “sustainable development”) in that it attempts to make of the concept “sustainability” a connection between the distant past and the present rather than using the term “sustainability” to merely advertise the merits of particular programs. Agroecology is thus open to the academic representation of traditional ecological knowledge, with its superior understanding of sustainability in its own contexts.

In discussing agroecology, here, we may wish to include discussion of another field which counts more as a practical art than agroecology: permaculture. Permaculture is interesting to advocates of sustainability because its advocates use rigorous methods to promote sustainable living through an “earthcare ethics” (Mollison p. 3): these involve fundamental reductions in energy use, localization of production, promoting biodiversity, and restoration of land wasted in industrialization. For the purposes outlined in this essay, permaculture suggests that the “science of sustainability” focus currently granted to agroecology education can be made to apply to all of the practical arts, and not just to agronomy and to the growing of crops.

In the area where I live, there is one course at a local college (Pomona College, in Claremont, California) that offers a course in agroecology education: “Food, Land, and the Environment,” Environmental Analysis 85, taught Spring Semester each year. Indeed, another nearby college, Cal Poly Pomona, offers more extensive courses in agriculture – but I would like to focus upon one of the texts used in the Pomona College course: John H. Vandermeer’s *The Ecology of Agroecosystems*, because I think that this text points to the “way in” for consideration of human social life within ecology, and thus a fuller reckoning with the goal of sustainability than has typically been the case in academic work.

Now it needs to be said here that other college agroecology textbooks have been informed by the sort of traditional ecological knowledge that informs Vandermeer’s book, and that also informs the vision of sustainability that is described in the previous section. Vandermeer’s book is exceptional in its treatment of social issues nonetheless. Stephen Gliessman’s *Agroecology: Ecological Processes in Sustainable Agriculture*, for instance, was a book used by the abovementioned Pomona College class in previous terms. It is full of pictures from the author’s studies of native agricultural practices in the state of Tabasco, in Mexico. Gliessman’s book, however, sticks pretty closely to discussions of biology, agronomy, and physics. Miguel Altieri’s (1987) *Agroecology: The Science of Sustainable Agriculture* contains a chapter by Richard B. Norgaard and Thomas O. Sikor (“The Methodology and

Practice of Agroecology,” pp. 21–40) which importantly discusses the socially beneficial aspects of the social employment of agroecology by non-governmental organizations in Latin America. Vandermeer’s book is nonetheless exceptional in that it ties the “hard science” and the social science together in a way which is unmatched by other textbooks.<sup>3</sup>

Vandermeer’s book starts with a set of vignettes (chapter 1) discussing different agricultural situations (the Irish potato famine, the Sun coffee crisis, and the Cuban experience with organic production), all of which illustrate the effect the capitalist system has had upon agricultural production.

The narrative of this book then shifts to a discussion of the history of agriculture, and the different ways in which agriculture came into being in different parts of the world. Vandermeer’s history of agriculture concludes with a discussion of the dramatic changes in agriculture that took place upon the introduction of capitalism, and of crop production for capitalist purposes.

In Chapter 4, Vandermeer shifts to a discussion of the chemistry of soil science and of industrial agriculture with artificial fertilizers, though Chapter 3, which discusses various aspects of agroecology as a mainstream science, prefaces this discussion. But it is the fifth chapter of Vandermeer’s book which ties together his “hard science” discussion of agricultural processes with his “social science” discussion of the history of agriculture and of the political economy of agriculture in a way which matters to cognitive praxis in environmental education.

Vandermeer starts by discussing, briefly, the beginnings of the movement for organic agriculture, which was institutionalized around the thesis that the biological life of the soil, and not just its chemical competition, mattered in terms of agricultural production. Vandermeer:

Although understanding the basics of soil physics and chemistry, as covered in the previous chapter, is certainly a prerequisite for understanding the ecology of agroecosystems, the real key for more ecological forms of agriculture comes with the biology of the soil. From the moles, to the ants and termites, to the earthworms, to the springtails, to the ciliates, the bacteria, the roots of the vascular plants, the algae and fungi, an enormous range of living organisms is involved in the formation, function, and maintenance of the soil. A great many of the physical and chemical changes that occur in soils are a direct consequence of living organisms. And there is general agreement that the extent to which this complex biological community is disrupted the “health” of the agroecosystem may become compromised. (p. 167)

Now, *The Ecology of Agroecosystems* might appear at first glance to be a textbook limited to college courses in soil science, biology, chemistry, or agronomy. But there is some heavy politics-of-science lifting going on here. Vandermeer’s claim is that industrial agriculture is in crisis today because it does not adequately take into account the biological makeup of soils, instead choosing to increase agricultural productivity through chemical means (artificial fertilizers, chemical pesticides and

herbicides, and so on). He also argues that the crises of industrial agriculture as such are part of the expanding capitalist system as it exists today.

The journey to Vandermeer's thesis, attempting to provide a scientific/academic basis for small-scale, "ecological" agriculture as an optimal way to produce food, proceeds rapidly and logically after this paragraph. This takes place both as a critique of the industrial model of agriculture as well as of the capitalist system. In the end, Vandermeer concludes that "the deep and local knowledge of the farmer, especially the traditional farmer, is essential to the development of the alternative model (of agriculture)." (p. 329) Moreover, Vandermeer suggests that in the process of industrialization of agriculture and of the process of proletarianization of farmers, both conditioned by the expansion of capitalism, this deep and local knowledge is becoming lost (p. 330). This agrees at least in spirit with the critique of capitalism presented in Malott's book.

Richard Kahn's criticism of "sustainability" in university discourse is that "sustainability is uncritically organized on campus such that it fundamentally accords with scientific types of technicism, instrumentalism, positivism, and naïve empiricism" (p. 104). Vandermeer's book is replete with graphs and equations, doubtless granting him respectability in academic science departments, yet in *The Ecology of Agroecosystems* the number-crunchers are put to work to support the small-scale farmers, using traditional ecological knowledge, to whom the book is dedicated. One of Vandermeer's most prominent moments of cognitive praxis is when he rebuts the most prominent arguments against organic agriculture, and (as with Malott's book) there is a discussion in this book of the Zapatistas as protagonists of agroecological knowledge, and of their relationship to the land.

Ecopedagogy about the future, using two Margaret Atwood novels

The future is itself unknowable. Predictions typically extrapolate – they imagine human beings to be predictable and then follow assumed trends forward. An example can serve to illustrate this point: If the technology of today is more complex than that of yesterday, then futurists are likely to assume that tomorrow's technology will be even more complex than that of today. Futurology, then, mines the world of the present for clues about the future. Typically this mining leans on science; futurology looks at scientific discovery and extrapolates from it.

Science fiction is like futurology in extrapolating from the present. Science fiction differs in that the science fiction text does not just tell us what the future will be like, but instead depicts human situations in an imagined future, narrated as dramas. Science fiction, then, offers imaginary futures in an educationally accessible, embodied form. However, as Samuel Delany (2005) says, "science fiction is not about the future;" it "uses the future as a narrative convention to present significant distortions of the present" (p. 291). Much of what science fiction predicts is not really likely at all to happen, but we would miss out on keen observations about the future as a psychological object if we were to think of "sci-fi" as merely a form of entertainment about an impossible world. Science fiction as used in a literature

class, for instance, could be a starting point for reflection upon human beings as versatile beings; any particular text might be read as expanding or shrinking their versatility (through mutations, technological amplifications, new environments, new forms of government, or encounters with extraterrestrial aliens). Science fiction has pedagogic value in suggesting a human world of possibility, of versatility, and of limitation, all of which are of relevance to the search for an effective cognitive praxis in our time and (ultimately) for the solutions to our environmental problems.

Certainly, one aspect of human versatility (or possibility) is what Cornelius Castoriadis (2007) calls “autonomy.” Autonomy according to Castoriadis is easy to define but hard to exemplify. “An autonomous person,” said Castoriadis, “is someone who gives herself her own laws.” (p. 94) The idea of an autonomous person is important in Castoriadis as an idea of an autonomous society, a grouping of people empowered to direct their own fates and decide matters amongst themselves, freely. So for Castoriadis “the institution of the overwhelming majority of known societies has been heteronomous,” i.e. not autonomous, as such (p. 97). An autonomous society, then, would be a somewhat utopian construct, a construct of a world far better than ours. It’s easy to see how Castoriadis’ idea of autonomy incorporates a number of social ideals: freedom, democracy, (libertarian) socialism, social responsibility, and so on. Because autonomy is the ability to change the social imaginary, it is also an important value of cognitive praxis. A critical question for environmental educators is one of how our autonomy (or whatever of our autonomy actually exists) can be employed to solve environmental problems in the future. We can work toward an answer to this question by engaging our premonitions of the future – by engaging with futurology, prognostication, and science fiction.

The positive, “describe what we want to see” solution to the problem of the future is enacted in Ernest Callenbach’s two novels, *Ecotopia* (1975) and *Ecotopia Emerging* (1981). *Ecotopia* is famous as a “realistic science fiction” tale, of a possible society in which all social institutions are organized autonomously, and with ecological consciousness involved in their planning. *Ecotopia* is, then, a utopian science fiction text – a story of a world organized according to an ideal (in this case, an ecological ideal) of human behavior. Utopian stories say to the reader: here is the world as it could be; go out there and make it like this. *Ecotopia Emerging* is the story, written afterward, of how *Ecotopia* came to be – with *Ecotopia Emerging*, however, the question arose for some book reviewers as to whether or not the idea of *Ecotopia* is at all realistic. Students might, then, not view the promise of an “ecotopia” as credible, especially if it is used in a course taught in the US context. The critical question is one of whether or not the resistance to “ecotopia” can be overcome. It does not appear that, at present, human beings are versatile enough, or autonomous enough, to bring about an ecotopia-on-Earth in the near future.

Given the current political mood of “realism,” and consequent conformism of social thought, it may seem more appropriate to the aims of environmental education at present to discuss environmental dystopia (a vision of a future gone bad), rather than a utopia (a vision of a good future), to dramatize the extensive damage people

are doing to their planet and, moreover, to dramatize the barriers to understanding which make solutions to today's environmental problems seem so far away.

As Tom Moylan (2000) suggests, dystopia's foremost truth lies in its ability to reflect upon the causes of social and ecological evil as systemic. Its very textual machinery invites the creation of alternate worlds in which the historical spacetime of the author can be re-presented in a way that foregrounds the articulation of its economic, political, and cultural dimensions. (p. xii)

In this vein, environmental education could proceed through dystopian science fiction by presenting future tales of ecological ruin, while at the same time incorporating important lessons about political economy. Of especial promise in this regard are two of Margaret Atwood's recent novels: *Oryx and Crake* and *The Year of the Flood*, for their reflections upon abrupt climate change, genetic engineering, and the social atmosphere of capitalist, consumerist society.

Now, Atwood herself denies that these books are in the category of "science fiction," though readers are likely to interpret them as such, for they take place in a future in which technology and social structure have been extrapolated.<sup>4</sup> These two novels take place in a single, imagined future burned by global warming, brought to social chaos by capitalism, and altered by the genetic engineering of both flora and fauna. In Atwood's future, capitalism has proceeded so far that there are no governments, only corporations (with a spooky military presence calling itself CorpSeCorps), and there are distinct social classes, the upper class living in the Compounds, connected by bullet trains, with the masses living in ghetto conditions in the Pleeblands.

As a one-time teacher of literature in classroom settings, I can tell you that if you are planning to use either of Atwood's novels for a course it's important to be sure your class understands and accepts the conventions of science fiction – you will probably have an easier time persuading students in advanced courses that science fiction is worthy of their time and energies than you will with remedial writers. The fundamental problem of teaching science fiction can be seen more clearly through the lens of Samuel Delany's interpretation. Again, Delany:

Science fiction is about the contemporary world; and the possibility of its futuristic distortions gives its side of the dialogue its initial force. (p. 291)

So imagine that you've assigned one of these books for a college-level class. If you want students to engage the dialogue invited by the text, you can encourage a receptiveness to the idea that the text is in fact asking questions about our present-day conditions of existence by showing how such conditions could be exaggerated in the future. This is, in fact, what happens in Atwood's recent novels.

Science fiction, moreover, is disconcerting to habitual readers of "regular" fiction because the setting, rather than the characters or the plot, becomes the main focus of the story itself. Delany again: "The SF writer, however, *creates* a world – which is harmonized with (or contrasted with, or played off against) both the story's characters and the given world in a much freer way" (p. 293). Thus science fiction is often a constant invitation to explore the contours of the writer's new world, and

then to use the contrast with our world to ask questions about it which are relevant to our current experience.

The fictional *location in time* of the setting is distinctive in a science fiction narrative, and can either be clear or unclear. Readers can discern that *Oryx and Crake* and *The Year of the Flood* take place in an imagined near future; but how long after the present day is not spelled out by the author. Some science fiction settings are spelled out temporally with presumed accuracy; so, for instance, you have the universe of “Star Trek,” which depicts action mostly in the 23rd and 24th centuries according to specific “star dates,” or Larry Niven’s “Known Space” series, which offers different settings for fictional narratives taking place over more than a billion years. Science fiction narratives which take place in a distinctly spelled-out future setting (the 23rd and 24th centuries, for instance, the settings for the various Star Trek series) are often invitations to imagine things which seem fantastic to our time – so in Star Trek you have matter transporters which can “beam” people from place to place, “warp drive” shortening the travel time between stars, and other difficult-to-imagine technological marvels. Atwood’s indistinct near future is different: it contains technological marvels (mostly genetically-engineered animals of bizarre combination, such as the “rakunks” (raccoon-skunks) or the “pigoons” (pigs genetically altered to grow human body replacement parts)) which it is assumed could become possible somewhat soon. The difficulty of reading the setting’s location in time may become a focal point for science fiction as taught in a college classroom.

The ecopedagogic use of *Oryx and Crake* and of *The Year of the Flood* makes use of science-fiction time in that, as the ecological deterioration of the Earth is said to have accelerated, so also has the world of capitalism expanded to create wider class differences and new, sensuous, and bizarre conveniences. These novels are of merit to environmental education, I feel, because they have characters who make fundamentally ecological decisions in a future in which, to use the voice of the character Toby in *The Year of the Flood*, “We’re using up the Earth. It’s almost gone” (p. 239). The main ecological decision characterizing both books, of course, is the decision by the character “Crake” to wipe out the human race and start out anew with a genetically modified human race scrubbed of flaws. Thus “the flood” of *The Year of the Flood*: an enormous, programmed plague wipes out almost the entire human race. This brings up some fundamental questions: if humanity isn’t worth saving, what are we to make of Crake’s decision to wipe out the human race (nearly; there are a few survivors), and to create a new one? What is “human nature,” and what are we to make of Crake’s notion that human nature is unredeemably flawed? But there are other ecological decisions going on: there is the nature cult, God’s Gardeners, largely described *The Year of the Flood*, which the book’s two protagonists join, and there is the main character Jimmy/Snowman of *Oryx and Crake*, who is largely an antihero thrust into the role of caretaker for Crake’s new human beings, the Crakers, and whose mother, early in his life, joined a guerrilla group dedicated sabotaging the ecologically destructive machineries of this world and is at some point found dead, having obviously been pushed off of an overpass onto a freeway.

In the setting of these novels, nearly everything is for sale, nearly everyone is on the take, and there really is very little of a social reality outside of greed and cheap thrills. In examining the more shocking passages at the beginning of *Oryx and Crake*, for instance, in which Jimmy/Snowman and Crake watch snuff films on the Internet, we might ask students about the social causes of violence, and of how a more peaceful society could be brought into being. In the world of these novels, there is no longer any government, or rights to speak of; the world is ruled by corporations and dominated in totalitarian fashion by a police force called CorpSeCorps. Here we could ask students or teachers of this novel about the extent to which Atwood's vision is plausible, or the extent to which democratic people-power might succeed in preventing corporate dictatorship. In the novels, there is a rigid class structure of corporate employees living in the Compounds amidst impoverished masses living in the Pleeblands. Autonomy (in Castoriadis' sense) has largely disappeared from Atwood's universe. The laws of human existence seem set in stone. Here we might ask students about the extent to which this has already become the case, and about what can be done.

In the numerous reviews of these novels as given on the "GoodReads" website (<http://www.goodreads.com>), readers often tell of building upon the experience of having read *Oryx and Crake*, the older novel, by reading *The Year of the Flood*, the newer one. The primary differences between the two novels are in characters and plot – in the first, we follow around unsympathetic male characters (Jimmy/Snowman, and Crake himself), and in the second, we follow around two somewhat sympathetic female characters (Ren, and Toby). *The Year of the Flood* has more in-depth discussion of ecological choices, given that its protagonists both join God's Gardeners for a portion of the novel's action. In the future, Atwood speculates, environmentalists will join a cult, because environmentalism will seem cultish when compared to the *homo homini lupus* behavior common to the world then. God's Gardeners struggle, however mightily, to recreate the feeling of "living off of the land" while recycling old culture in homage of environmentalisms and religions past. They grow food, for instance, on rooftop gardens to keep it safe from the vandals who roam the streets below. In teaching Atwood's passages about God's Gardeners, we might ask our students questions about the extent to which environmental consciousness is culturally embedded in our society – would environmentalism be stronger in our society, for instance, if it had its own church or religious cult?

Part of the mythic background preached by God's Gardeners (in *The Year of the Flood*) is a striking appropriation of the story of Noah in the Bible. The character "Adam One," leader of the God's Gardeners cult, phrases it thusly:

We God's Gardeners are a plural Noah: we too have been called, we too forewarned. We can feel the symptoms of coming disaster as a doctor feels a sick man's pulse. We must be ready for the time when those who have broken trust with the Animals – yes, wiped them from the face of the Earth where God placed them – will be swept away by the Waterless Flood... (p. 91)

Thus in Atwood's portrayal of the environmentalist cult of the future, Biblical myth is appropriated not to predict Armageddon and the Rapture in present-day fundamentalist fashion, but a future on this Earth, a future in which the centuries-long experiment in nature-appropriation has been brought to a screeching halt. It is too late to solve environmental problems in Atwood's future, because nobody really has the power to do anything besides look for cheap thrills while conforming to the established standards for "pursuing a career," as Jimmy/Snowman and Crake do, or to survive against predatory men and abusive labor conditions, which is also what Toby and Ren do.

Environmental problems are viewed in Atwood's future as something post-apocalyptic. The present is hopeless, and only a horrific disaster brings back nature. Above all, Atwood is asking us: what kind of collapse will be required before something fundamentally new is to spread over the Earth? This is probably the most prominent question which would come up in a class dedicated to studying the environmental issues posed by *The Year of the Flood*.

In one of his last essays ("Imaginary and Imagination at the Crossroads"), the philosopher Cornelius Castoriadis painted a vision of the future in stark terms:

I think we are at a crossroads in history, in History with a capital H. One path is now clearly marked, at least for its general direction. That path leads to the loss of meaning, the repetition of empty forms, conformism, apathy, irresponsibility, and cynicism, along with the growing takeover of the capitalist imaginary of unlimited expansion of "rational mastery" – pseudo-rational pseudo-mastery – of the unlimited expansion of consumption for consumption's sake, which is to say for nothing, and of technoscience racing ahead on its own, and obviously a party to domination by that capitalist imaginary. (p. 86)

Indeed Atwood carries the depiction of "pseudo-rational pseudo-mastery" as such to its ultimate extremes. Castoriadis continues:

The other path would have to be opened up; it has not been marked out at all. Only a social and political awakening, a renaissance, a fresh upsurge of the project of individual and collective autonomy – that is, of the will to be free – can cut that path. (p. 86)

The challenge of environmental education, then, is to associate the instructional process with a forthcoming renaissance, in the ways shown above, so as to avoid the sort of future predicted by Atwood (and other dystopians in that vein).

## CONCLUSION

So far, this essay has offered examples of "cognitive praxis" as a concept linking education, specifically conceptual education, with the idea of activism to solve environmental problems. If cognitive praxis is to be effective in solving environmental problems in a world in environmental crisis, it must open a discussion

of political economy, and have something to say about our systems of politics and economics. The “pedagogy of unity” of Curry Stephenson Malott adapts North American traditional ecological knowledge to present-day circumstances, making the past relevant and prompting questions of how we can work together in light of the history of colonization foisted upon the native populations of this land. Agroecology education suggests an academic “in” for traditional ecological knowledge, and for political economy, in an academy today dedicated largely to research using “hard science” models. Margaret Atwood’s recent novels can also serve as pedagogic devices to focus environmental education upon the possibility of dystopia.

Saylan and Blumstein’s *The Failure of Environmental Education (And How We Can Fix It)* suggested that environmental education had failed because it could not solve today’s environmental problems. Going beyond the standard definition of environmental education as exposure to wilderness, it argues: “environmental education must clearly illustrate that there is only one earth, and we’re all on it together” (p. 45). Its authors recognize that “creating environmentally aware students in a society that does not recognize the gravity of the environmental problems it faces is not likely to have much of an impact on those problems” (p. 47), so its authors recognize the necessity of broad social change.

This book comes closest to a discussion of political economy in a chapter titled “Accountability and Institutional Mind-Set,” in which it laments our society’s inaction on important and pending issues such as abrupt climate change:

The issue at hand is not so much the outcome of any specific meeting or bit of legislation. It is rather what might be described as the rise of the institutional mind-set in our societies, wherein bureaucracies create policy based on self-perpetuation, which does not necessarily reflect the will of the people or enhance the public well-being. (p. 61)

The authors then examine institutional inertia in a wide variety of institutions: legislatures, school districts, and environmental organizations. At the end, the authors concede depressingly that “it may seem naïve and utopian to expect a major overhaul in the existing political and social fabric to occur to help slow or reverse the anthropogenic assault on our environment” (p. 71). This institutional inertia, then, is the authors’ closest approximation to an explanation of the system’s dysfunction.

As educators, the authors of *The Failure of Environmental Education* recognize that they play bit parts in the drama of social change: Blumstein teaches a field biology class in which his students learn about conservation; Saylan promotes conservation studies in professional science education (p. 106). The “good ideas” they promote to expand the academic range of their professions (pp. 108–115) include a number of worthy activist projects, including communities of different ethnic and class backgrounds.

A cognitive praxis approach would take this approach one step further. Specifically, discussing political economy (in its specifics, which have been touched upon in this

essay) in conjunction with “good ideas” in environmental education would expose college-level students to the possibility of changing society’s institutional logic.

### NOTES

- <sup>1</sup> There are also, in fact, pedagogies and instructional programs which demonstrate the superior time frame in which traditional ecological knowledge “goes back further” than mainstream science: see e.g. Angayuqaq Oscar Kawagley and Ray Barnhardt’s “Education Indigenous to Place: Western Science Meets Native Reality,” pp. 117–142 of *Ecological Education in Action* (Albany NY: SUNY P, 1999).
- <sup>2</sup> An excellent social analysis of the marginal position of education departments in the modern university is given in David F. Labaree’s (2004) *The Trouble With Ed Schools* (New Haven CT: Yale University Press).
- <sup>3</sup> Cox and Atkins’ (1979) *Agricultural Ecology* indeed has a section on “Agriculture and the Future,” but this is given at a rather general level.
- <sup>4</sup> Atwood’s characterization of her novels as “speculative fiction” and not “science fiction” is treated here as a category choice – arguably “speculative fiction” is a subset of “science fiction.”

### REFERENCES

- Altieri, M. (1987). *Agroecology: The Science of Sustainable Agriculture*. Boulder CO: Westview Press.
- Armitage, K. (2009). *The Nature-Study Movement: The Forgotten Popularizer of America’s Conservation Ethic*. Lawrence KS: University Press of Kansas.
- Atwood, M. (2005). *Oryx and Crake*. Nor York: Random House, 2005.
- Atwood, M. (2010). *The Year of the Flood*. New York: Anchor-Random House, 2010.
- Bailey, Liberty H. (1905). *The Nature-Study Idea, being an interpretation of the new school-movement to put the child in sympathy with nature*. New York: Doubleday, 1905.
- Cajete, G. (2000). *Native Science: Natural Laws of Independence*. Santa Fe, NM: Clear Light Press.
- Callenbach, E. (1975). *Ecotopia*. Berkeley CA: Banyan Tree Books.
- Callenbach, E. (1981). *Ecotopia Emerging*. Berkeley CA: Banyan Tree Books.
- Castoriadis, C. (2007). *Figures of the Thinkable* (Helen Arnold, Trans.). Stanford CA: Stanford UP, 2007.
- Comstock, A.B. (1911). *Handbook of Nature Study for Teachers and Parents*. Ithaca NY: Comstock.
- Delany, S. (2005). Some Presumptuous Approaches to Science Fiction. In Gunn, J., & Candelaria, M. (Eds.), *Speculations on Speculation: Theories of Science Fiction*. Lanham MD: Rowman and Littlefield.
- Deloria, P. (1998). *Playing Indian*. New Haven CT: Yale University Press.
- Freire, P. (1993). *Pedagogy of the Oppressed*. 20th anniversary edition. New York: Continuum, 1993.
- Gliessman, S. (1998). *Agroecology: Ecological Processes in Sustainable Agriculture*. Chelsea MI: Ann Arbor Press.
- Guha, R. (1999). *Environmentalism: A Global History*. New York: Longman, 1999.
- Harkin, M.E., & Lewis, D.R. (Eds.) (2007). *Native Americans and the Environment: Perspectives on the Ecological Indian*. Lincoln NE: University of Nebraska Press.
- Huhnendorf, S. M. (2001). *Going Native: Indians in the American Cultural Imagination*. Ithaca NY: Cornell University Press.
- Kahn, R. (2010). *Critical Pedagogy, Ecoliteracy, and Planetary Crisis*. New York: Peter Lang.
- Kovel, J. (2007). *The Enemy of Nature*. 2nd ed. London: Zed.
- Krech, S. (1999). *The Ecological Indian: Myth and History*. New York: W.W. Norton.
- Labaree, D. (2004). *The Trouble With Ed Schools*. New Haven CT: Yale University Press.
- Malott, C.S. (2008). *A Call To Action*. New York: Peter Lang.
- Marcuse, H. (1972). *Counterrevolution and Revolt*. Boston: Beacon Press.
- Martinez-Alier, J. (2002). *The Environmentalism of the Poor*. Cheltenham, UK: Edward Elgar.
- Marx, K. (1990). *Capital: A Critique of Political Economy, Volume One*. London: Penguin.

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- McLaren, P. (2005). *Capitalists and Conquerors: A Critical Pedagogy Against Empire*. Boulder CO: Rowman and Littlefield.
- Menzies, Charles R. (Ed.) (2006). *Traditional Ecological Knowledge and Natural Resource Management*. Lincoln NE: University of Nebraska P., 2006.
- Mollison, B. (1991). *Introduction to Permaculture*. Sisters Creek, Tasmania, Australia: Tagari.
- Moylan, T. (2000). *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*. Boulder CO: Westview Press.
- Orr, D.W. (1996). Reinventing Higher Education. In Collett, J., and Karakashian, S. (Eds.), *Greening the College Curriculum: A Guide to Environmental Teaching in the Liberal Arts*. Washington DC: Island.
- Palmer, J. (1998). *Environmental Education in the 21st Century: Theory, Practice, Progress, and Promise*. New York: Routledge Press.
- Saylan, C., & Blumstein, D. (2011). *The Failure of Environmental Education (and How we Can Fix It)*. Berkeley CA: University of California Press.
- Smith, G. A., & Williams, D.A. (Eds.) (1999). *Ecological Education In Action: On Weaving Education, Culture, and the Environment*. Albany NY: SUNY Press.
- Thompson, E.S. (1899). *Wild Animals I Have Known*. New York: Scribner's Sons.
- Thompson, E. S. (1903/1911). *Two Little Savages*. New York: Grosset & Dunlap.
- Vandermeer, J. (2011). *The Ecology of Agroecosystems*. Sudbury, MA: Jones and Bartlett.
- Weaver, Jace. (Ed.) (1996). *Defending Mother Earth: Native American Perspectives on Environmental Justice*. Maryknoll NY: Orbis.

# GREENING CRIMINOLOGY

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## INTRODUCTION

‘Criminology’ can be defined in a great variety of ways but at its simplest and in the terms most commonly accepted it is taken to be the study of crime, criminals and criminal justice. Characterised by Downes (1988, and see Carrabine et al., 2009, p. 3) as a ‘rendezvous subject’ and remarked upon by Garland and Sparks (2000, p. 190) as having no monopoly on the study of crime, criminology is well positioned to expand its contribution to interdisciplinary research on local and global environmental issues. A green perspective for criminology therefore promises to provide not only a different way of examining and making sense of various forms of harm and crime and responses to them but also an explication of much wider connections that are not generally well understood.

## GREENING CRIMINOLOGY

What do we mean by the term ‘green criminology’? At its most abstract level, green criminology refers to the study of those harms against humanity, against the environment and against animals other than humans (hereinafter, “animals”) committed both by powerful institutions (for example, governments, transnational corporations, military apparatuses, scientific laboratories) and also by ordinary people. Like most abstractions, of course, this one invites more questions perhaps than it was designed to answer. For example, it is often analytically difficult to disentangle environmental harms from the abuse of animals. Animals of course live in environments, and their own well-being – physical, emotional, psychological – is absolutely and intimately linked to the health and good standing of their environments. The forms of these ‘green harms’ are numerous, their financial costs alone are staggeringly large and they range from the everyday to the exceptional.

Green harms include the abuse and exploitation of ecological systems, including animal life; corporate disregard for damage to land, air and water quality; profiteering from trades and practices that destroy lives and which leave a legacy of damage for subsequent generations; military actions in war that adversely affect the environment and animals; new challenges to international treaties and to the emerging field of bio-ethics, such as bio-piracy; illicit markets in nuclear materials; and legal monopolisation of natural resources (e.g. privatisation of water, patenting of natural products, etc.) leading to divisions between the resource rich and the resource

impoverished and the prospects of new forms of conflict, harm, injury, damage and crime. Green harms include, too, both individual acts of cruelty to animals and also the institutional, socially-acceptable human domination of animals in agribusiness, in slaughterhouses and abattoirs, in so-called scientific experimentation and, in less obviously direct ways, in sports, colleges and schools, zoos, aquaria and circuses.

Although the term conceals numerous general and local problems, we believe that, expressed this simply as a harm-based discourse, green criminology serves as a timely and crucial addition to existing critical, democratic and left-oriented perspectives on crime and social harm. Like these allied criminologies, green criminology begins by problematising the nature of crime: how is it defined, by whom and with what purpose(s)? Which harms are defined as crimes? Which are not? Which harms are defined as both harmful and criminal? Which are defined as neither? To each of these questions, moreover, can be added another: with what consequences and for whom?

#### GREEN CRIMINOLOGY: CHALLENGES, ACHIEVEMENTS, PROSPECTS

Proposing a green perspective for criminology is about more than simply adding a new perspective within criminology – it is a call to expand the range of green critical inquiry. Brief examples serve the purpose of illustrating how the themes of justice and rights have been explored in green criminological work so far.

##### *Environmental Justice*

One concept that unifies a now considerable body of work in this field is the idea of environmental justice (Benton, 1998; White, 2007, 2008; Lynch and Stretesky, 2007). Many studies have drawn attention to the environmental victimisation of communities of the poor and powerless due to the frequency with which their locations are also the sites of polluting industry, for instance, and of waste processing plants or other environmentally hazardous facilities (Bullard, 1994). Environmental injustices also include cases where local, Indigenous populations have been forcibly removed from land to which they are spiritually attached or where their land has been exploited for military, agribusiness or other purposes in circumstances depriving them of any control or say (Samson, 2003; Kuletz, 1998). Usually the consequences are damaging, if not devastating, producing community dislocation, relationship breakdowns, mental health and substance misuse problems and so on. Hence, White (2004:281) usefully suggests that:

Environmental justice refers to the distribution of environments among peoples ... and the impacts of particular social practices on specific populations. The focus of analysis is therefore on human health and well-being and how these are affected by particular types of production and consumption. Here we can distinguish between environmental issues that affect everyone, and those that disproportionately affect specific individuals and groups.

*Crimes Against Animals Other than Humans*

A green perspective concerned with harm and rights will attend not just to the situation of humans but also to that of animals. Though not quite yet a major field of study, there is nonetheless a substantial and growing body of work on animal abuse in criminology. In 2010, for example, a gathering of 20 or so criminologists and scholar activists was convened in Cardiff, Wales, in order to encourage the study of animal abuse in criminology, one direct result of which is the publication in 2011 of a special double issue on the topic in the journal *Crime, Law and Social Change*.

As it has so far been understood, within green criminology ‘animal abuse’ is a term which typically refers to those diverse human actions that contribute to the pain, suffering or death of animals or that otherwise adversely affect their welfare. Animal abuse may be physical, psychological or emotional. It may involve active maltreatment or passive neglect, and may be direct or indirect (Beirne, 2007, 2009; Cazaux, 2007). Sometimes, of course, animals are harmed when their environments are degraded through the sheer chaos wrought by natural disasters such as earthquakes, hurricanes and tsunamis, or through human-induced causes like wars, climate change, oil spills and road construction.

If violations of animals’ rights are to be central concepts in green criminology, then we could profitably begin by examining why, just like some harms to the environment, some harms to animals are defined as criminal, others as abusive but not criminal and still others as neither criminal nor abusive. In exploring these questions a narrow concept of crimes against animals would necessarily have to be rejected in favour of a more inclusive concept of harm. Regan’s (2007) notion of harms to animals as either ‘infringements’ or ‘deprivations’ springs readily to mind here (though he has been strongly criticized for limiting his umbrella of animal rights to mammals). Without this re-thinking, the sources of animal abuse will be found to lie only in the personal biographies of those humans who abuse animals in one-on-one situations of cruelty and neglect. Certainly those cases demand our attention. But so too do those other and far more numerous institutionalised harms to animals, where abuse is routine, invisible, ubiquitous and often defined as socially acceptable.

In the case of both environmental justice and animal rights discourses there are evidently doorways leading to many other questions and disciplines – philosophy, law, psychology, literature, life sciences and so on. Two questions then arise meriting further discussion. First, what kind of interdisciplinary connections can a green criminology make? Second, where can we find the common ground on which to build the intellectual capital to underpin the legitimacy of a ‘green criminology’?

## INTERDISCIPLINARY CONNECTIONS FOR A GREEN CRIMINOLOGY

Looking across the wide horizons of the social and natural sciences and the humanities, it would seem that a considerable amount of relevant research and debate, concerns and concepts connect surprisingly well with aspects of criminology as a multifaceted subject. This is even more the case in relation to a green criminology where an

interdisciplinary and comparative approach, embracing, for example, understandings of context, culture, law, economics and science, will be of real benefit. As Hauck (2007) observes, “criminology is one discipline – among many – with a role to play in politicising environmental harm and mobilising action that is appropriate to sustain resources and livelihoods”.

*Science, law and literature*

Global biotechnology industries have increasingly sought to identify and exploit natural products with medicinal and healing properties ‘discovered’ in developing nations. The biodiversity of different environments has yielded products with numerous uses for local populations for centuries. However, accusations of ‘bio-piracy’ and post-colonial exploitation have arisen where subsequent ownership of genetic materials and pharmacological products has been asserted by Western interests via systems of intellectual property rights and patents that are alien to the Indigenous peoples who have previously used these gifts of nature. Where religion and pseudo-scientific notions of evolutionary hierarchies once provided the justifications for practices such as piracy and colonial exploitation, today science, law and commerce play these parts.

Similar practices, issues and concerns are associated with the global expansion of Western bio-agricultural corporations and contestation around ownership of seeds, plants and knowledge derived from Indigenous farmers. Here science and law are harnessed together by the powerful to support a process of disempowerment and exploitation. In a different context, Kuletz (1998, p. 28) reports a similar process affecting the radiation-related health problems facing the Navajo and other peoples of desert areas of the American West. Here uranium has been mined and nuclear tests carried out but the statements of the victims are “in effect, excluded from consideration and the people who speak them are, by extension, excluded from any decision-making process bearing on their welfare” (*ibid.*). In both sets of circumstances, “anecdotal knowledge” (based on inter-generational folk wisdom as well as real contemporary experience) is de-legitimated and not weighted as strongly as “scientific evidence” (which is privileged as inherently and evidently neutral and unbiased). This perhaps strengthens the argument made by green criminologists such as Lynch and Stretesky (2001) for the development and use of science to support the cause and plight of those who are victimised but frequently excluded from recourse to redress or protest.

Law can also, of course, be employed in defence of the environment and on behalf of the victims of power. The field of environmental law is now well established and although the laws themselves are by no means secure or implemented consistently (O’Hear, 2004), the practical problems that such law turns upon are offences and forms of regulation that will be increasingly central on the global stage of the 21st century. International treaties depend upon compliance and regulation; conflicts will increasingly be fought over environmental resources. The environment is subject

to theft and exploitation, in need of protection and – just as in the fight against other forms of crime and harm – will require specialist policing and enforcement of agreements and rules (South, 2011).

Making criminological connections of a literary nature, Ruggiero's (2002, p. 98) insightful essay on Herman Melville's classic novel *Moby Dick* explores the violence and sense of challenge that mark the way of life of Captain Ahab and his crew in their battle with nature and, in particular, the mighty whale, all reflecting Melville's age of "science, exploration, entrepreneurial daring and ... obsession with dominion over nature". However, as is also evident, Melville's book is about discovery in more than one sense and the need for harmony and peace with nature is a central message. Literature, art and music are enormous repositories of the stories and images of the violence we do to our environment and the animals with whom we share planet Earth. For all the progress made in science, society and civilised life since the 19th century of Ahab and his mercantile peers, we continue to live with "contradictory claims about the legitimacy of accumulation, the exploitation of nature, power and hierarchy" (*ibid*, p. 96) and a criminology enriched by interdisciplinary insights is all the better placed to illuminate and investigate this.

#### THE INTELLECTUAL CURRENTS AND CONTEXT OF GREEN CRIMINOLOGY: GREEN ENVIRONMENTALISM AND ANIMAL RIGHTS

To some extent, there is a certain obviousness about the need to forge some common ground between the environmentalist-based discourse of green criminology and the animal-centred discourse of animal rights. To begin with, they already have much in common. For example, each has been nurtured within a much larger social movement – respectively, various environmentalism(s) and the animal protection community. These larger movements originated at roughly the same time and under similar circumstances, namely, the turbulence, iconoclasm and leftist political activism of the 1960s. Moreover, in terms of their ethical perspectives and much of their theoretical assumptions, both movements have an underlying concern with relations of power and inequality and with the elimination of their undesirable effects. These latter include harm, exclusion, injury and suffering. Both in their own ways are more or less consciously anti-statist and anti-authoritarian. Each embraces participatory democracy. Adherents of one movement often travel seamlessly to the other, and they often support the causes of both, including buying locally and buying less, reusing and recycling, using public transportation, and practising vegetarianism and veganism.

Clearly, the respective concerns of animal rights and green environmentalism broadly coincide on major aspects of climate change, as does their opposition to its perceived perpetrators. Among these latter are agribusinesses, transnational corporations, profit-seeking and ignorant states and ineffective international enforcement machinery. However, a clear moral position that is unimpeachable in logic, philosophical foundations or legal reasoning may not fare quite so well

when confronted by the messy complexities and contradictions of the real world of human interaction and forces of nature. Indeed, the identification of common ground between an environmentally- (or ecologically-) based green criminology and an animal-centred animal rights theory, worthwhile as it might be, is not altogether a straightforward one. This is so not only because most of us are normally in a state of denial about animal rights issues, as some sociologists have pointed out. Several other obstacles confront this task: some of them matters of convenience and definition, still others without clear resolution.

By way of illustration, consider, first, the numerous points of conflict among indigenes, animals, colonists and the environment in the mid-seventeenth-century Massachusetts Bay colony. At that time the colonists allowed their animals to wander unattended in Massachusetts Bay because of the relative scarcity of human labour there. The colonists, assuming that their cattle, pigs, sheep and goats would thereby fatten and multiply, not only condoned but also insisted upon the free roaming of their cattle. The result was a very serious conflict over grazing practices between colonists and the Indigenous, Algonquian-speaking people. The colonists typically solved this rivalry simply by appropriating Indian land, so that their cattle could then graze there even more freely. Moreover, as Anderson (2004, p. 116) points out in her book *Creatures of Empire*, the environmental impact of the colonists' rising number of livestock cattle increased over time: pigs who killed smaller trees by gnawing on their roots, congregating cattle who compacted and crushed the soil, which thus led to erosion...which in turn led the livestock to range further afield and the colonists to appropriate yet more land.

To the indigenes it was not only that the colonists' livestock were a detested symbol of foreign power but also that the animals wandered into their traps and trampled their corn. In retaliation some of these animals would doubtless have been killed or mutilated by the indigenes and some would have found their way into their meals (Beirne, 2009, chapter 2).

One wonders, however, what the response of green criminologists would be to those aspects of human-animal relationships described above in seventeenth-century colonial America. Specifically, how should we see the essential facts of resistance involving victimised animals and which were to be repeated in the nineteenth century against landlords in East Anglia and against the English occupation in colonial Ireland? Is the indigenes' mutilation of the colonists' cattle a justifiable practice of retaliation? Some would perhaps see it as justifiable given the overwhelming power differences between the colonists and the indigenes. But some wouldn't. We suspect that the dividing line between one response and the other would be some version of a radical commitment to animal right theory: *ahimsa* (i.e. to do no harm) in any and all circumstances.

Consider, second, the situation of the 155,000 Arctic Inuit ('Eskimos'), whose Indigenous groups inhabit northernmost Canada, Russia, Greenland and the United States. Since 2004 the Inuit have sued the U.S. government claiming that, because it tolerates heat-trapping smokestacks and automobile emissions, which directly cause the melting of the Arctic icecap and environmental degradation, the U.S. has contributed not

only to the deaths of individual Inuit but also to the possible extinction of their culture (Watt-Cloutier, 2005). As their legal suit has developed, the Inuit have alleged that they are the victims of environmental crimes and that this violates their basic human rights.

But will the movements in green environmentalism and animal rights find common cause in their respective attitudes to the effects of climate change on animals' lives and animals' habitats in the Arctic? At this point we should add that, with much scientific evidence to support them, the Inuit have further complained that rising temperatures, disappearing glaciers and icecaps, and wind-borne toxic pollution have adversely affected the health of Arctic seals and of the indigenes who regularly eat them. Their hunting of seals and other marine mammals the Inuit see as an essential part not only of their culture and traditions but also, indeed, of their physical survival. Thus, an Inuit elder has stated that "[t]he seal...provides us with more than just food and clothes. It provides us with our identity. It is through sharing and having a seal communion that we regain our strength, physically and mentally" (quoted in Peter et al., 2002, p. 167) In terms of their everyday items the Inuit have traditionally used seals, narwhals and whales for food and clothes. The fur and skin of seals are used for boots, moccasins, snowshoes, gloves and mittens, purses, gut bags, caps, parkas, capers, frontlets and tunics. Seals are also used in the making of kayaks, fumiaks and sleds. Seals' fat or blubber is turned into oil for lamps, as is that of whales and walruses. In a mark of respect for those about to be killed, harpoons are often decorated with carvings of seals. Harpoon lines are made from bearded seal hide. Animal bones – including those of seals, walruses and narwhals – provide fishhooks, lures and utensils and other tools and weapons, including projectile points and parts of the all-purpose knives known as ulus (see *passim*, Stuckenberger, 2007).

The intersection of climate change, traditional Inuit survival practices and seal hunting is a complicated one which naturally elicits a variety of responses from green criminology. Among green criminologists there is likely unanimous condemnation of the continued exploitation of relatively powerless Indigenous peoples, like the Inuit, and the threat posed by climate change to their very survival – physical, economic and cultural. Some green environmentalists and some animal welfarists will bemoan the human-induced poisoning of seals because spoiled or dead seals are a wasted 'wild' or 'natural' resource and a "fishery" to be "harvested" wisely. One section of the animal rights movement will doubtless condemn the hunting and slaughter of adult and infant seals by all humans under any and all circumstances. Clearly, in this odd scenario one type of right is seen to trump all others, i.e., the survival of seals is of greater importance than the health and viability of those Indigenous peoples who live in extreme or arduous climates. But a principled *ahimsa* for all surely entails lethal harm to some. Indeed, we believe that about the killing of seals there is an important distinction to be made between, on the one hand, slaughter of seals by professional hunters for reasons of haute cuisine or fashion ('furs') or sport and, on the other, the killing of seals by the Inuit, given the normal climatic conditions of their environment and their needs for survival.

COMMON GROUND FOR GREENING THE ACADEMY

Environmental and feminist studies have demonstrated that we cannot deny the intimate entanglement between humanity and nature. This has a profound message for the teaching and learning of all academic subjects. Furthermore, as Adam (1998) superbly illustrates, time, space and nature interact in ways that suggest that it has been an unhelpful characteristic of all disciplines, whether within the humanities and arts or the sciences, natural and social, to hold too strongly to a separation of nature and culture. Such a separation is not as neat as often presented. Thus,

...humans are tied to the rhythms of night and day ... constituted by a multitude of circa rhythms... from the very fast firing of neurones to the heart-beat, from digestive to activity-and-rest cycles, and from the menstrual cycle to the larger regenerative processes of growth and decay, birth and death. ... (p. 13)

We therefore need to:

steer a path that avoids the unacceptable choices of traditional social theory and analysis: between biological and social determinism (where people are understood to be governed by either their biology or society), between realism and relativism (where the external world is thought to be either discovered or constructed by the understanding we bring to it), between meta-narratives and particularism (where analyses are considered to be embedded in the worlds of either overarching, universal theories or particular, unique contexts and events). [We need] to take account of nature without succumbing to biological determinism, ... [and] accept relativism as inescapable without losing the ability to talk about the physical world of 'nature' and technology ... (pp. 6–7)

Nature or what is 'natural' is often experienced simply as a manipulated construction, both physically and discursively used and abused. Within this kind of dominant discourse it is also accepted that the superior human (white-male) is also self-evidently and 'naturally' set above nature and therefore holds dominion over it, whether it be in a form that is categorised as strange, wild, farmed or domesticated (Hallsworth, 2008). Stephenson (2008) addresses this well in her analysis of how modern society organises the disposal of unwanted animals: those that are sorted out and found to be 'too unpredictable, too implicated in nature's unruly ways' and end up consigned to a 'programme of sterilisation, testing and extermination'. Nature – the environment we inhabit and the animals who share this with us – is deemed to be 'different'. Humans are held to be above it: we perceive, sense, see, feel everything to do with nature as something 'external' and generally isolate ourselves from any true sense of connection. Yet as Benton (1994, p. 40) argued some years ago, we should instead:

...view humans as a species of living organism, comparable in many important respects with other social species, as bound together with those other species and their bio-physical conditions of existence in immensely complex webs of interdependence, and as united, also, by a common evolutionary ancestry.

## TOWARDS A GREEN CRIMINOLOGY

In recent years criminology has been influenced by developments in law, public campaigning and social protest to embrace and take seriously ‘rights’-based issues relating to human rights generally and to the rights of victims, women, minorities and animals, in particular. The denial of rights – even where not a criminal offence – has been examined in various areas of criminology, such as victimology, restorative justice, crimes of war and colonialism. But rights to traditional ways of life and protection from exploitation of Indigenous lands, culture and folklore (as foundations of traditional knowledge) have been neglected in criminology as well as ineffectively affirmed in national and international law (Orkin, 2003). Perhaps the Inuit’s complaint that climate change violates their human rights will mark a turning point in this crucial respect.

The movement in green criminology aims to provide a new perspective on the unjust exploitation of natural resources, ecosystems, humans and animals, and the consequences of this for the health, welfare, heritage and rights of all affected by such actions. It is a progressive and open perspective and offers a fertile point of connection with other areas of the academy concerned with environmental justice and the protection of rights for all beings.

## NOTE

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## REFERENCES

- Adam, B. (1998). *Timescapes of Modernity*. London: Routledge.
- Anderson, V. D. (2004). *Creatures of Empire*. Oxford: Oxford University Press.
- Beirne, P. (2007). Animal rights, animal abuse and green criminology. In P. Beirne and N. South (Eds.), *Issues in Green Criminology* (pp. 55–83).
- Beirne, P. (2009). *Law, Criminology, and Animal Abuse*. Lanham, Md.: Rowman & Littlefield.
- Beirne, P., & South, N. (Eds.) (2007). *Issues in Green Criminology*. Cullompton: Willan.
- Benton, T. (1994). Biology and social theory in the environmental debate.’ In M. Redclift & T. Benton (Eds.), *Social Theory and the Global Environment* (pp. 28–50). London: Routledge.
- Benton, T. (1998). Rights and Justice on a Shared Planet. *Theoretical Criminology*, 2(2), 149–175.
- Carrabine, E., Cox, P. Lee, M, Plummer, K., & South, N. (2009). *Criminology: A sociological introduction*. London: Routledge.
- Cazaux, G. (2007). Labelling animals: non-speciesist criminology and techniques to identify other animals. In P. Beirne, & N. South (Eds.), *Issues in Green Criminology*. (pp. 87–113). Cullompton: Willan.
- Dickens, P. (2001). Linking the social and natural sciences. *Sociology*, 35(1), 93–110.
- Downes, D. (1988). ‘The sociology of crime and social control in Britain, 1960–87’, *British Journal of Criminology*, 28(2), 175–87.
- Garland, D., & Sparks, R. (2000). ‘Criminology, social theory and the challenge of our times’, *British Journal of Criminology*, 40(2), 189–204.
- Hallsworth, S. (2008). ‘Imaginary spaces and real relations’, In R. Sollund (Ed.), *Global Harms: ecological crime and speciesism*, New York: Nova.

- Hauck, M. (2007). Non-compliance in small-scale fisheries: a threat to security? In P. Beirne & N. South (Eds.), *Issues in Green Criminology* (pp. 270–289). Cullompton: Willan.
- Jamieson, D. (2002). *Morality's Progress: Essays on humans, other animals, and the rest of nature*. Oxford: Clarendon Press.
- Kuletz, V. (1998). *The Tainted Desert: Environmental and social ruin in the American West*. Routledge: London.
- Lynch, M. J., & Stretesky, P. (2001). Toxic crimes: examining corporate victimization of the general public employing medical and epidemiological evidence, *Critical Criminology*, 10(3), 153–172.
- Lynch, M. J., & Stretesky, P. (2007). Green criminology in the United States. In P. Beirne, & N. South (Eds.), *Issues in Green Criminology*. (pp. 248–269). Cullompton: Willan.
- O'Hear, M. (2004). Sentencing the green collar offender: punishment, culpability and environmental crime, *Journal of Criminal Law and Criminology*, 95(1), 133–276.
- Orkin, A. (2003). When the law breaks down: Aboriginal peoples in Canada and Governmental defiance of the rule of law, *Osgood Hall Law Journal*, 41(2/3), 445–462.
- Peter, A.M. Ishulutak, J. Shaimaiyuk, N. Kisa, B. Kootoo and S. Enuara (2002), The Seal: an Integral Part of Our Culture, *Études/Inuit/Studies*, 1(26), 167–174.
- Regan, T. (2007). Vivisection: the case for abolition. In P. Beirne & N. South (Eds.) *Issues in Green Criminology* (pp. 114–139). Cullompton: Willan.
- Ruggiero, V. (2002). Moby Dick and the crimes of the economy, *British Journal of Criminology*, 42(1), 96–108.
- Samson, C. (2003). *A Way of Life that Does Not Exist: Canada and the extinguishment of the Innu*. London: Verso.
- South, N. (2011). Environmental offending, regulation and 'the legislative balancing act.' In J. Gobert & A. Pascal (Eds.), *European Developments in Corporate Criminal Liability*. London: Routledge.
- Stephenson, S. (2008). The dog that could not bark. In R. Sollund (Ed.) *Global Harms: ecological crime and speciesism* (pp. 151–165). New York: Nova.
- Stuckenberger, N. (2007). *Thin Ice: Inuit Traditions Within a Changing Environment*. Hanover, N.H.: University Press of New England.
- Watt-Cloutier, S. (2005). "Petition to the Inter American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States." Accessed January 30th, 2009 at: <http://www.inuitcircumpolar.com/files/uploads/icc-files/FINALPetitionICC.pdf>
- White, R. (2004) Criminology, social regulation and environmental harm. In R. White (Ed.), *Controversies in Environmental Sociology* (pp. 275–292). Port Melbourne: Cambridge University Press.
- White, R. (2007) Green criminology and the pursuit of social and ecological justice. In P. Beirne & N. South (Eds.), *Issues in Green Criminology* (pp. 32–54). Cullompton: Willan.
- White, R. (2008). *Crimes against Nature*. Cullompton: Willan.