Ideologies of Nature and Sustainability:

A critical discourse analysis of environmental education policy

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Dedication

Dedicated to the Earth

And the union of all living beings

May you know love and compassion.

To my children

My enduring reason for living

And my hope for a better world.

To Michael and David

Who taught me

And inspired me

And believed in me

And re-ignited my belief in myself.

To Gabriel

Who showed me the moon

The stillness of the Earth

And the rhythms of its breathing

With love.

Man is the only animal who does not feel at home in nature, who can feel evicted from paradise, the only animal for whom his own existence is a problem that he has to solve and from which he cannot escape.

Erich Fromm, 1973

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This thesis is about fighting back against the tyranny of capitalism and the commodification of nonhuman nature. Despite its difficult subject matter, I am indebted to many individuals for making the process one filled with richness and life.

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Image by Grinagog. Retrieved from https://www.deviantart.com/art/The-Green-Man-84525718

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Preface:

Through the Green Man's eyes

This preface situates me within this thesis and provides a broad overview of its narrative. I begin with the story of the Green Man (fig. 1), whose disembodied head is rooted in pre-history. I use the Green Man in the preface as a symbol for nature for a variety of reasons. He symbolises what Mark Olly (2016) calls, "the underlying magic of the earth itself" or "the essential life force" (p.9). On a similar note, Gary Varner (2006) says he represents "the spirit of nature" (p.11). The Green Man originated in ancient pagan philosophy; one that I wish to re-story in light of modern ecocide.

The symbol of the Green Man is Eurocentric. He is a hybrid creature –part plant and part human – and sits alongside the other supernatural beings associated with nature such as faeries and water sprites (Varner, 2006). He has been looking out at humanity from beneath a foliate face since at least 1200 BC, most notably on the British Isles and throughout Europe (Holness, 2011). He is closely associated with trees, and the ancient universal symbol of the cosmic tree or tree of life (Holness, 2011). This is important, says Carl Jung, for the modern-day human who finds him/herself in a "de-souled world". The Green Man is:

> The symbol of the cosmic tree rooted in this world and growing up to heaven – the tree that is also a man. In the history of symbols this tree is described as the way of life itself, a growing into that which eternally is and does not change; which springs from the union of opposites and, by its eternal presence, also makes that union possible. It seems as if it were only through an experience of symbolic reality that man, vainly seeking his own "existence" and making a philosophy out of it, can find his way back to a world in which he is no longer a stranger
>
> - Jung, 1972, p.78

The Green Man's Eurocentric roots are significant because this thesis is, in part, an exploration of Western ideologies of nature over time. The idea of nature as alive and breathing and as divine essence was illustrated in traditions and oral histories of early cultures, including the Celts. These early oral stories linked the natural wold with the otherworld (Varner, 2006). Such 'myths' formed the basis of Judeo-Christian lore but have come to be considered by modern day religions as 'primitive' (Varner, 2006). The emergence of Cartesian discourses of the environment as dead and inert matter during the Enlightenment period also dealt a death blow to the Green Man. Thus, the Green Man's pre-Christian and pre-Cartesian roots, his links to the otherworld, make him an appealing representation of nature – before he became smothered with the 'meaning-making' that killed him.

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The Green Man can be located in the distinctive art style of the Celts (Olly, 2016). Their art had a distinctive style, including many foliate faces, swirling plant patterns and knot-work. Celts also sculpted wild boar, cats, birds, fish, bulls, horses, deer and legendary creatures –and used many materials including bronze. Souls remained in the Earth. There was no concept at this stage of heaven in the sky (Olly, 2016).

The use of the Green Man may be curious to readers as he is seemingly male and this sits somewhat uneasily with the ecofeminist position I take in some papers in this thesis. Ecofeminism analyses links between the domination of nature and the domination of females. The notion of 'male' and 'female' are binaries in Western thought and this dualistic dynamic is not easily bypassed (Plumwood, 1993). Modern interpretations of the Green man also sit within these binaries and carry with them certain underpinning assumptions. For example, Olly (2016) discusses how the Green Man represents "the endless unstoppable cycle of life, death and hopefully resurrection, that the ancients mostly attributed to men" (Olly, 2016, p. 9). On the other side of the coin, women were seen as representations of fertility, birth and life.

This is repeated in visions of feminist utopias that draw on the Earth Mother. As Plumwood (2002) says, "Feminist vision often draws the contrasts starkly – it is life versus death, Gaia versus Mars, mysterious forest versus technological desert, women versus men" (p.). My choice of the Green Man (as opposed to the Goddess Earth Mother) was, in part, a choice I made to avoid the gynocentric essentialism of the Earth Goddess and the questions this raises. By choosing the Green Man, I am seeking a more universal symbol for nature – as his gender is not a key focus of his various narratives.

In addition, while the Green Man is depicted as male, he has nonetheless been linked to Goddesses and the Virgin Mary. In the Church of St Bertrand Commings, for example, there is a wooden medieval sculpture of a winged woman giving birth to the Green Man's head (Holness, 2011). He is the universal: both female and male, and life and death, at the same time.

For the purpose of this thesis, the Green Man is the embodiment of wild spaces, natural landscapes, the regenerative force of life, the sunlit leafy mounds and ancient trees, the unknown, the known, and the spaces in between. Language, including the male/female binaries, the 'she' and 'he' pronouns, cannot capture this essence. Yet, I am forced to write, read and think in a language that is gendered. This reaffirms the assertion made repeatedly in this thesis that nature is mediated to us (as humans) through cultural and social structures such as language, politics, economic activity, religion and the law.

The Green Man, as he stands in for the spirit of nature, has been a continuous presence for me as I have written this thesis. I have always experienced him there, sometimes looking over my shoulder with imperviousness. He has been a difficult character, appearing as a mask, relentless and unmoving, staring dolefully from his revered position. He knows my yearning for completeness, he hears my sadness, and yet he remains unmoved; which is unsurprising as he is usually constructed from wood or stone.

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The Green Man therefore holds symbolic significance for this thesis. He is an archetypical figure and appears to have the power to remain an important symbol of nature across time and place. Nature is often the beginning point of much philosophical thought that seeks to define what it is to be human; our very essence defined by the 'not human'. The concept of nature in Western traditions can be traced back to the ancient Greeks. Due to its perpetual motion, Greek philosophers conceived of nature as a living organism. Nature was also thought to be intelligent due to its underlying structure and orderliness. It was "a vast animal with a soul and a rational mind of its own" (Sheldrake, 1990, p. 33). All plants and animals participated psychically, intellectually and materially in the world's body, mind and soul (Sheldrake, 1990).

Even though the Green Man is now said to be dead, he was once alive and breathing. He was accorded a sacred status; connected to our ancestral past, or to God, as much a part of humanity as humans themselves. Such a complex, animistic understanding of nature as a life-giving, soulful and alive force was also evident in medieval Europe, Roman technology, pre-Christian and Christian traditions. Rupert Sheldrake (1990) demonstrates how this perception manifested powerfully in the great gothic cathedrals. Carved ornately in the cathedrals were trees, imps, dragons, animals, angels, sacred groves and saints. The Green Man was a recurrent figure in cathedrals: a head made of leaves and spouting branches from his mouth, he is entwined completely in nature (Sheldrake, 1990).

He is said to symbolise "humankind's link with the earth, always ambiguous, and representing both continuity and discontinuity" (Holness, 2011, p. 85). Sheldrake (1990) argues that he embodies the very soul of nature; that formative power that caused embryos to grow and take their form. Within this ancient philosophy, the soul of nature is also the human soul which included the mind, spirit, animal instincts and the body. The human soul was regarded as connected to the animal and plant soul, even though there were differences between these (Sheldrake, 1990). This philosophy of nature was cosmic and interlinked in complex ways: "Man was a microcosm of the entire cosmic organism… Human society likewise reflected the hierarchical order of the universe, and the movements and conjunctions of the planets were connected with human lives and the destinies of nations (Sheldrake, 1990, p.35).

While he has been said to have a number of meanings, the Green Man holds a special significance for me personally and for this thesis. Personally, he calls me into a timeless and circular world that moves in rhythms and pulses, one that I share with the nonhuman animal. He plants in me the determination to fight against the capitalist impulse for death and destruction. He shows me a murderous and harsh regime that destroys everything it touches. Perhaps that is why he looks so melancholic.

On another level of analysis for this thesis, I regard him as demonstrating a counter to the objectification of nature through the rationalistic, neo-Cartesian, ideological framework. Within this discourse, nature is variously positioned as the 'other': as separate from humans. It is seen as something that humans look upon as subjects; with nature as the object. The Green Man, by contrast, represents the way nature and humans are intertwined and not separate.

Yet, along with mechanisation and the factory system of production, humans and nature have become dichotomised and separate entities. While 'progress' has been framed in terms of the industrial and technological advancements since the 1700s, the idea of nature has likewise been transformed. So, while the Green Man was once representative of wholeness between humans and nature,– and he may still hold that significance for some – for me, he demonstrates increasingly disrupted and fragmented human-nature relations. In this thesis, I argue that this disjuncture has occurred concurrently with the spread of industrial capitalism across the globe after the breakdown of Feudal society. The objectification, de-sacralisation and destruction of nature are part and parcel of its commodification, governance and privatisation under capitalism.

The traditional Judaeo-Christian orientation to nature regarded it as the work of God, and so the Green Man was sacred. In the first article of this thesis, I discuss his de-sacralisation over time, and particularly through the Enlightenment period. Even though the notions of stewardship and dominion over nature still remain in post-Enlightenment Western thought, he became soulless. In the tale of human progress, so central to the Enlightenment and Western grand narrative of social evolution, the Green Man is treated in instrumentalist terms as both a commodity and a human resource.

The rational-scientific-technological ideologies of nature that form such a good fit with capitalism and industrialisation are explored in the first article of this thesis. Here it is argued that post-Cartesian thought celebrates a transcendent and disembodied reason, coupled with the scientific method within which nature becomes a source and object of knowledge. Through transcendent reason it was held that humans can come to know the non-human world, which has led to an anthropocentric attitude. Post-Cartesian Western thought is bound by constrictive binaries of culture/nature; subject/object; man/woman; and mind/body. These shape the 'nonhuman' discursively in instrumental and inferior ways. Indeed, our progress as humans is often narrated in the post-Enlightenment meta-narrative as a result increasing knowledge of the natural world, of harnessing natural forces, of dominating, conquering, controlling and mastering the Green Man.

The mid-1700s, the period of Western scientific revolution, could be said to be the time when the Green Man was reinvented/rediscovered. Scientists, or,more strictly speaking botanists, from this era travelled the globe collecting, categorising and ordering nature in what were perceived to be rational ways. Previously, plants had been ordered according to their relationship to humankind and uses - for example edibility or taste - but now they were categorised according to structural similarities and differences (Wulf, 2015). Beginning with Carl Linnaeus (1707-1778), plants and animals were squeezed into a taxonomy system. They were collected, identified, described, drawn, classified, named and ordered. Later scientists, such as Alexander von Humboldt (1769-1859), built on this work to detail the relationships between plants, animals, climatic and geographic conditions to portray a complex web of life. This was the beginnings of ecological science (Wulf, 2015). Further work by Charles Darwin in "On the Origin of Species" developed the idea of classification based on evolutionary relationships.

This set the stage for the expansive, post-Enlightenment, Western project of taming the Green Man. Now, he has been relegated to the domestic Garden of Eden; one that humans can tend, conserve, test, and use. If we take the Green Man to stand in for nature or 'nature's spirit', then he is now little more than a useful backdrop to the great human success narrative of the Enlightenment.

Through these discourses, the Green Man appears tamed and ordered, and yet still relegated to unknown and nonhuman spaces at the same time. He is a quiet, if somewhat unnerving presence. He is regarded as 'out there' and not as an integral part of our being with spiritual significance. He is variously described as an 'ecosystem service', 'natural resource' or 'tourist destination'. He is unapologetically male and androcentric; he is an object and not a subject; a timeless, nameless, numb, feelingless mass of material.

Thus, the Green Man's gaze reflects the humanization of nature across time. Once he symbolised the cosmic unity between nature and humans. Now, he is fragmented by thought that is based on the subject/object or human/nature dichotomy. We are still compelled to think in terms of these binaries and so we remain as paralysed as the mask. This dichotomy operates to establish a worldview through which nature is thought about and acted upon. On the one hand, the gaze (especially thought ecological science) allows us to recognise nonhuman nature as our larger organic self, and respect the ecological webs we are connected to as humans. On the other, we are still stuck within the human/nonhuman opposition at the base of much post-Enlightenment Western thought on nature.

This utilitarian view of nature is based on scientific, post-Enlightenment and capitalist ideologies, which have sought to kill and de-sacralize the Green Man, and turn him into nothing but atoms. He has been stripped of his godliness. Yet he remains there still, carved on a tree and in the essence of all living things. Even though he is dethroned, he refuses to leave, and stares back at us. It is as if the very spirit of nature will not be murdered thus, and has returned the gaze upon us in a silent and historical standoff.

By returning the human gaze with a baleful stare, the Green Man is restlessly disruptive and ultimately humbling. He has remained unchanged over centuries of human existence. He signifies the centrality of nature to our lives and reminds us of our mortality and fragility. Our biological beings die and return to the earth; in death we become the very nature we objectified in life. Life and death are part of the same process and not binary opposites. Post-Enlightenment ideologies of the grandeur of humanity make this a difficult idea.

Yet what the Green Man sees now in 2016 must make him want to recoil right back in upon himself. The bleakness of the Anthropocene casts a gloomy and suffocating net over all of nature. Nature looking back on himself and can see his impending demise. We have entered the period of the sixth great extinction of all time, with massive biodiversity loss. This has been bought about and compounded by major global environmental issues such as climate change, soil desertification, deforestation, acid rain, pollution and resource destruction. Neoliberal global capitalist development is at the root of these issues.

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The conversion of the Green Man into the sickly 'environment' is the focus of the second article in this thesis. In this article, I further use Foucault's genealogical strategy to outline the emergence of environmentalist discourse during the second half of the twentieth century by population biologists and ecologists. This scientific material was used by environmentalists to draw attention to the pathologically dire state of the Green Man, now transformed variously into the Earth, the biosphere and 'life support systems of our planet'.

Through this process, the Green Man disappeared ever more as a spiritual cosmic being, only to be evoked by deep Green resistance movements on the fringes. Ecological science came to form the kernel of much discussion about nature, with its positivistic, scientific intellectual focus that operates what Foucault calls a 'truth model'. The Green Man was scientifically proved to be in serious trouble.

The politicisation of the Green Man led to the formation of a crisis discourse to global responses. The various institutions of the United Nations (UN), in particular, acted as disseminators of this truth. As the UN sought (on the surface at least) to address his ordeal, they placed on his head a thorny crown and helped him to the cross of neoliberal, global, economic development. Now he is not only desacralized, but facing his death. While deep Green fringe dwellers recognised that economic development was hurting the Green Man, perhaps irrevocably, the UN instead argued that more economic growth was the solution. This was to become a hegemonic ideological formation under the borrowed title of 'sustainable development' (SD).

Current Sustainable Development Discourse (SDD) is broadly outlined in article two. This discourse has become the dominant environmental position which has become embedded in policy in global and local contexts. The ideological formation of this SD discourse is overlapping and would appear at times contradictory. This United Nations (UN) led discourse articulated key elements of an earlier radical sustainability discourse: derived from ecological politics and anti-globalisation Third World politics. These included a nod in the direction of reverence for the Green Man and an ecocentric perspective.

Essentially, article three argues that there has been a watershed in ecopolitics since the 1980s when environmentalism and dissenting radical discourses have fallen under the ambit of neoliberal ideology. The early, pre-neoliberal, radical discourse of sustainability and environmentalism was based on notions of 'limits to growth', small-scale production and self-sufficiency. Nature was seen in terms of a vast network of interlinking ecosystems and rich biodiversity that was increasingly at risk. It was a response to environmental degradation that put the Green Man first, ahead of economic growth and development. In fact, it argued against Fordist, capitalist-led, industrial growth and the impact of the rapidly expanding industrial 'developed' North on the 'developing' South. Most crucially than this, however, under current SDD, these ideologies were articulated with the neoliberal capitalist global agenda which was presented as the solution to the Green Man's woes. Previously, radical environmentalists, drawing on the work of ecologists, argued that the Green Man needed to be protected from capitalist economic and industrial growth. Now, it was being argued that the economic growth imperative and protection of ecological integrity could be reconciled for

the sake of human prosperity. This led to the emergence of a neoliberal version of sustainable development.

In article three, the process of the neoliberalisation of sustainability discourse is discussed further. This article focuses on the era of the global market, where it is argued that the Green Man has been transformed once more. However, this time, he is deceptively multifaceted and embroiled in complex eco-politics. SDD positions the Green Man is a multitude of ways. The idea of the Green Man as a web of life with an internal coherence is premised. Predictably, alongside this ecological logic are the environmentalist concerns for the Green Man's health. But it does not finish there. Within this discourse, we also find Deep-Green concerns for his intrinsic worth and the provision of space for looking at the world through his eyes (ecocentrism).

Article three details how this earlier environmental opposition was effectively neutralised through what has come to be known as 'the Rio Process'. The Rio Process refers to a series of UN intergovernmental summits that sought to reconcile global environmental concerns and economic development. The Green Man was forced to come to these meetings, although I am sure he would have preferred to be elsewhere. He held centre stage, even while remaining somewhat invisible. His crown of thorns dug ever deeper into his head as he was positioned as on equivocal terms with the economy. His extrinsic worth as an economic resource, commodity and life-support service for humankind was to become the dominant priority…for you cannot exploit the Green Man and value him for himself at the same time.

These neoliberal capitalist ideas (neoliberal globalisation, free markets, privatisation, competition, resource, ecosystem service and profit) are articulated within common-sense ideologies of nature (nature as benevolent and all-giving, ecosystem, life support system) so that the Green Man is valued only in terms of his instrumental worth, despite claims to the contrary.

The neoliberalisation of sustainability was a result (in Gramscian terms) of a war of position (Mayo, 2005). In this war, the ecocentric and sacred Green Man was the ultimate loser. For he was transformed from being a revered, alive and sacred force, to being a soulless, dead, political football. And many of his biggest protectors, the environmentalists and early sustainable development radicals, have now dropped the football and allowed his enemies to run with it.

Essentially, the Green Man has been nailed to the cross of neoliberal capitalism. He is there still, dying slowly as the floods of climate change lap against him. He has become privatised, commodified, corporatized, put on show, sold up the river, used and abused, and flogged off. But still he looks out at us, and will do until his last gasps. As the life drains out of him, all that rely on him for sustenance become weakened.

This image of the Green Man, in his death throes and flailing weakly, remains concealed from many. Just how did the majority come to consent to this scenario? This question is addressed in article four where I build on my earlier work on the UN take-over of Sustainable Development Discourse (SDD). Here, it is argued

that transnational state bureaucracies such as the UN supersede and redefine the nation state, effectively establishing a global locus of power that infiltrates local policy contexts. The transnational state (TNS) redefines the nature of the social order in neoliberal terms, including the perceived proper relationship between humans and nature. SDD's institutionalization in mainstream New Zealand government policy is a case-study in how the TNS transmission belt works. Environmental Education (EE) became subordinated to this process. The UN has disseminated universalizing and totalizing mandates for EE in the form of Education for Sustainability (EfS) or Education for Sustainable Development (EfSD).

The UN may be understood as an ideological interstate apparatus that seeks to neutralise resistance to neoliberal capitalist expansion. It does this by convincing global citizens, and students as future citizens, that market capitalist growth and ecological integrity are mutually supportive as long as 'development' proceeds sustainably. The fundamental contradiction between market capitalism and ecological integrity is smoothed over. The logic of the market is said to address issues of environmental degradation as capitalists, appreciating their investment in a natural resource base will also protect it.

The Green Man is in trouble and entrusting him to market forces is a harrowing prospect. The market is inherently unable to protect him, let alone nurse him back to health. It's like prodding a limping and dying man ever closer to the edge of a plank and into the swirling, rising seas below. For we have now entered the period of the Anthropocene, facing the sixth great extinction; climate change, biodiversity loss, pollution, desertification of land and acidification of the oceans, political instability, war and a growing polarization between rich and poor both between and within countries. In addition, social democracy is being threatened by corporate libertarians, who have a monopoly and control of the economy.

Yet the Green Man cannot leave us because *he is us*, and in much more than just a biological sense. If he dies, we die too, and that is perhaps one of the biggest tragedies for humanity. He will undoubtedly rise from the ashes, for he is life as well as death. He will live on in a raw unadulterated sense, reformulating and reconfiguring himself. But he will never again take the shape of a human face.

Overview:

Organisation of thesis

In exploring ideologies of nature, sustainability and EE, I have had several goals in mind. Firstly, I want to trace the continuities and disruptions in Western ideologies of nature, and in particular, to locate them within the material context of the historical trajectory of the capitalist mode of production (CMP). That is, the ideologies of nature explored in this thesis are treated as integral to the historical and dialectical unfolding of the CMP. Many historical ideas on nature, particularly those since the Enlightenment, have become incorporated in dominant forms of social thought that are integral to Western capitalist development. In the present era of neoliberal-led global capitalism, these same fundamental ideologies are expressed in neoliberal forms within policy contexts, which are explored in the latter part of this thesis.

Initially, I explore these ideologies of nature using Foucault's genealogical strategy. This exploration is detailed in the first two articles in this thesis. These articles provide a foundational platform to analyse how the neoliberal project has harnessed dominant, common-sense ideologies of nature (for example, nature as benevolent and all-giving; nature as an ecosystem) and articulated them with capitalist ideologies (nature as resource, commodity or service for humankind). Through this discursive struggle for neoliberal ascendency, basic capitalist ideologies of nature have been reasserted and brought to the foreground. In this respect, I hope to capture the essential and invariant ideological core of the capitalist view of nature; how its form changes over time and space and, in particular, to examine its mid-range expression in this neoliberal era.

Secondly, this thesis aims to document and analyse these ideologies of nature in terms of their humanist, androcentric and anthropocentric orientation. It is argued that these are also integral to the core and essential form of the capitalist view of nature. This is significant to my critique, in the latter half of this thesis, of EE, EfS) or EfSD policy. As Michael Bonnett (2007) has argued, official environmental education policy globally largely ignores the question of nature. In short, it has become invisible as dominant capitalist ideologies of nature seek to redefine it in instrumental terms as 'resource' or 'ecosystem service'.

Accordingly, I demonstrate that ideologies are not clearly demarcated and contained within labelled categories but are rather divergent and interlaced with a range of presuppositions. It is in uncovering underpinning premises about our relation as humans to nature within discursive positionings that is central to the analysis of environmental education. The meaning of 'nature', our underlying attitude and our relationship to it is thus of critical significance to this thesis.

Thirdly, this thesis explores how these ideologies manifest within the political struggles of our times. I intend to demonstrate in this thesis, that neoliberal ideologies of nature operating within specific policy settings are constitutive of a particular form of the capitalist worldview concerning human-nature relations.

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This neo-Marxist analysis shows that the neoliberal-led capitalist ideologies of nature, when employed in educational policy settings, provide a structural framework governing the formation of attitudes and behaviour toward nature.

Thus, I explore the process through which capitalist ideologies of nature have become central to the regulatory project of neoliberalism. This occurs through the production of meaning in policy settings that aim to address environmental and sustainability issues. I attempt to demonstrate that sustainable development discourse (SDD), as defined within United Nations (UN) circles, has been, since the 1990s, arguably the most dominant expression of environmentalism within and across global and national policy settings including EE. Policy development in SD is closely linked to the needs of the neoliberal-led global economy. Ideological contestation is characteristic of all political struggle and is what Gramsci calls a "war of position". However, as this thesis demonstrates, this struggle has been dominated since the mid-1980s by the neoliberal bloc. This argument is made in the third article of this thesis.

Current SDD is based on neoliberal ideologies and agendas, most notably a market-based approach to nature which has become commodified and reduced to an anthropocentric set of 'ecosystem services' and 'economic resources'. This is demonstrated in the third article which sets out to explore how the underpinning agenda of SDD is crucially integral to global processes of capitalist expansion framed by neoliberal ideologies.

This argument is built on and further developed in the fourth article. Within this article, I argue that SDD has infiltrated national policy settings through the processes of the emergent transnational state (TNS). The transmission process is from the global centre to its national linkages. The TNS has been critical to reducing radical environmental concerns to the logic of dominant sustainable development discourse (SDD) and spreading this 'rationality' variously and unevenly across global policy settings.

Fourthly**,** this thesis applies the above analysis specifically to environmental and environmental education policy in New Zealand to demonstrate how the neoliberal project expands. Neoliberal policy has dominated global and local settings and is presented (through SDD) as a way of 'managing' natural environments and conserving biophysical resources in the present times and for future generations (Castree, 2008).

It is argued that EE has become increasingly dominated by SDD. The orthodoxy SD orientation in environmental curricula has become particularly evident in countries who are signatories to the document arising from the 1992 Rio Earth Summit - Agenda 21 (The United Nations Conference on Environment and Development (UNCED), 1992). The role of the UN has been integral to the operation of the TNS in being the source of the neoliberal view of nature that has been disseminated to the national policy context and, in particular, to educational curricula policy.

The bureaucracies of the transnational state, especially the UN, have had a central role redefining environmental policy and environmental education in local

contexts. The fourth article in this thesis describes the process of transmission of SD orthodoxy from the global to the local (Robinson, 2001). Accordingly, SDD becomes integrated into policy formation at different points in the process of transmission from the global to the national. I look at how SDD is conceptualised and applied in the particular context of New Zealand environmental and educational policy.

Finally, on a more personal level, writing the above articles has involved a deep exploration of my own experiences with nonhuman nature and my deepening despair at the false demarcation between the human and the nonhuman. I have developed, at a much deeper level, a long-standing empathy with the nonhuman animal and distress at the domination s/he is subject to. Through my research journey, I learned the how the nonhuman animal had become subject to the horrors of the 'animal industrial complex' (Sorrenson, 2014). The immense global animal agriculture industry subjects billions of animals to untimely and fearful deaths after lives of captivity and sometimes excruciating confinement. It is modelled on many of hallmarks of capitalism including the assembly-line model of factories.

In addition, as John Sorrenson (2014) notes, "the animal exploitation industries are major factors in a global environmental crisis that is pushing many species to extinction and creating dangers for human survival, especially the world's poorest people" (p. xi) There is no space here to detail the travesties of environmental destruction that can be traced back to animal agriculture. Sufficeto say that the outcomes of this exploitation have been identified as significant catalysts in climate change due to methane and carbon dioxide emissions; habitat destruction and loss of biodiversity; land degradation and water and air pollution (Sorrenson, 2014).

The knowledge of such harm has taken me to dark, empty and incomplete spaces. I questioned the ethical issues of my continued deliberate participation in the animal industrial complex. As a result, I made the personal and political decision to become vegan and began a grassroots anti-dairy campaign. This is discussed in article five, which is an autobiography of my vegan praxis and grassroots activist work.

I believe activism to be a critical responsibility of the intellectual. Yet as an animal rights' activist I am contradictorily placed. The academy as an institution is in many ways connected to the animal industrial complex. My dual location as an activist and academic at a university in the heart of a dairy farming region (Waikato) is one that I wish to research more. Threats on my life and letters sent to my workplace asking for my dismissal by dairy farmers is illustrative of the dualistic and complex road travelled by academic activists.

Carol Adams calls this a "war on compassion" and argues that speciesist ideologies support an incomprehensible level of nonhuman animal suffering in late stage capitalism (Adams, 2014). Speciesist ideologies are integral to the maintenance of dominance over the natural world which is named, ordered and classified.

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Article five discusses my activism and situates my theorizing of the nonhuman emotional, bodily and spiritually. Through this journey I was continually in search of the *Other:* the nonhuman animal; and life. In many ways then, this thesis mirrors my own subjective human incompleteness, yearning and loss of self in a dehumanizing world.

To conclude this section, this thesis illustrates that human lives under capitalism are framed by deep conceptual divisions. Two of the most fundamental of these is the chasm between animals/ humans and females/ males. Western ideologies of nature illustrate a particular androcentric worldview, one that commodifies nature and regards humans as managers of a vast tamed landscape. This illustrates a sadistic orientation, the kind of character which philosopher Erich Fromm (2007) says results from particular societies based on egoistic, sadistic and selfish values. Reconstructing our subjectivities as 'managers of the environment' is suggestive of a neoliberal discourse. Yet to mismanage living, breathing beings so that they slowly die in horrific circumstances, force them to the brink of extinction, destruct their habitats and alter the material basis of our survival is devastating.

This thesis is an attempt to reframe the story of environmental tragedy and understand it from a historical-materialist position; grapple with the existential dilemma of being evicted from paradise; re-imagine new possibilities for 'being' in the world, and re-frame the concept of 'paradise'. I hope my research may contribute to the growing critique in the field of environmental education by offering fresh critical insight.

Methodology

The key focus of this thesis has been on analysing ideologies of nature though critical discourse analysis (CDA). This thesis employs critical discourse analysis (CDA) of both ideology and political discourse in policy settings. It is through discourse that ideology is reproduced and disseminated. Accordingly, in this thesis I critically analyze sustainable development discourse (SDD) to tease out the ideologies that constitute it.

The CDA orientation I draw on here derives from neo-Marxist and post-structuralist theory, particularly the work of Michel Foucault (1972), Ernesto Laclau, and Stuart Hall.

I discuss my use of Foucault's genealogical analytical strategy in some depth in article two. Foucault provides a way of analysing discursive positionings on nature in a genealogical sense, tracing their historical construction according to the political and economic context of their formation. This strategy has been useful in teasing out the disruptions and continuities in environmental thought over time and linking them to historic conditions. Discourses are ideological configurations or 'truth models' about the economic, social and natural worlds. In this thesis, these are analysed according to the power relations they foster. Once a truth model becomes 'naturalised' and taken for granted it develops the character of inevitability. That is, common sense understandings of nature become taken for granted and used by governments to establish control over populations (Luke, 1995-1996).

Drawing on the work of Foucault, I have explored the process through which particular discourses of nature are configured and reconfigured. A Foucauldian understanding of discourse is one that looks beyond discourse in terms of 'language' or 'linguistic' signs that reflect a particular reality. On a rather deeper level, discourse is seen as an active process that is constituted in the very practices of individuals and societies. Foucault writes, "discourses are practices that systematically form the objects of which they speak … discourses are not about objects, they do not identify objects, they constitute them and in doing so conceal their own invention" (Foucault, 1972, p.49). In this sense, discourse is a "system of meaning that constitutes institutions, practices and identities in contradictory ways" (Larner, 2000).

In this regard, environmental education policy has been constituted by particular discursive regimes. I use CDA to analyse the discursive positions that are available to students through education policy. This is central to the process of governmentality which includes the formation of subjectivity and self-governance (Foucault, ?). Foucault's concept of neoliberal governmentality refers to the process through which governments produce citizens who conform to market-based norms (Larner, 2000) or, in this case, a market based, technological, problem-solving approach to understanding human relationships to nature.

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I also draw on the work of work of Ernesto Laclau and Stuart Hall and the theory of articulation. Articulation is "a process of creating connections" between ideologies in a way that appears to coordinate the interests of various groups to establish consensus (Hall, 1996, p. 114) . This is a process of political struggle that involves the dominance of some positions and the subordination of others. Thus, in articles three and four, I demonstrate that capitalist and neoliberal ideologies, along with subordinated ecocentric and ecological ideologies of nature, are articulated and form a discourse.

A significant point to note is the link between the articulated discourse and the social forces. It is this unity between certain historical conditions (such as advanced neoliberal capitalism) and an articulated combination of ideologies (such as sustainable development discourse (SDD)) that produces meaning or common sense (Slack, 1996). This Gramscian inspired theory demonstrates the way in which groups consent to their subordinated status (Slack, 1996).

The final article in this thesis is an auto-ethnography. I use both narrative and reflexive techniques. This auto-ethnography uses my experience as an animal rights' activist and integrates this with theory to analyse dominant ideologies of nonhuman nature in the New Zealand context.

Key interlinking themes

Marx and Nature

In theorizing ideologies of nature in this thesis, I use a number of theorists, including Michel Foucault (1926- 1984) and his method of genealogical discourse analysis. In doing so, I explore primarily European based ideologies of nature including animism and 'Mother Earth'. These ideologies are depicted not in terms of reflecting 'stages of development'—that is, as a reflection of the struggles of humankind with both a benevolent and adversarial nature. Rather they are analysed (drawing on Karl Marx 1818-1883) as embedded within a particular mode of production.

This thesis draws on the insights from neo-Marxist theory, and the very specific understanding that Marx had about the socio-nature relation. It is often declared that Marxism has not contributed much to ecological analysis (Foster, 2000). The key insights of Marx and Engels, however, include a critique of the capitalist mode of production with regard to environmental exploitation, including pollution and the effects this has on people in places in which they work and live (Parsons, 1977) . Marx and Engels explained that there are various unforeseen and harmful consequences of capitalist industry such as deforestation, ruination of soil fertility, implications for workers' health, and environmental pollution (Parsons, 1977)

In the first article, I attempt to trace the emergence of particular ideologies of nature in an historical sense by considering their embeddedness in a particular mode of production. This article argues that prior to the break of feudal states and the rise of capitalism and industrialisation in Europe, humans lived closely with nature and usually within ecological limits. The feudal period was based on the production of basic needs. However, during the feudal mode of production the material forces of production (increased technical capacity and higher production) came into conflict with the relations of production. This led to the break-up of feudalism and the rise of the bourgeoisie and the proletariat. The development of electricity, machines, and steam engines all called for a divided work force, and the rise of the factory (Jakubowski, 1976).

Building on Marx's theorizing, this thesis focuses on the mutual transformation of humans and nature. Humans, as members of society, co-produce and transform nature, socialising it (Jakubowski, 1976). Human activity transforms nature into the social and the two in concrete practice cannot be considered separately. In Marxist terms, nature and humans are connected through labour; with nature providing the means of subsistence (e.g. soil fertility, animals) and means of labour (e.g. wood, metal, coal, gas, navigable rivers) (Jakubowski, 1976).

Marx demonstrates that "it is not only natural factors that determine man but also man who increasingly determines nature" (Jakubowski, 1976, p.31). Thus, the

nature of nature is historically and socially contingent; expressed and represented in ideological ways. Enlightenment ideologies of nature in scientific and utilitarian terms rose hand and glove with capitalism.

Under the capitalist market economy, the nature of production shifts from collective production for direct consumption, to collective production for sale in the market, and to individualised production and consumption relations. Previously, in hunter/gatherer societies (the dominant form of human society until 10.000 years ago) and even feudalism, humans were more connected to the land upon which they worked and collectively produced from. They had their own tools and worked to satisfy need.

However, under the capitalist mode of production, based on private ownership of the means of production, workers sell their labour power and become alienated from the product. The worker's production becomes alien to him, and the worker manufactures commodities for the owner of the means of production (the capitalist). The transformation of nature takes on a specific character which involves alienation of humans from themselves (as the worker him/herself becomes a commodity) and from nature (as the product of his labour becomes alien to him) (Jakubowski, 1976). Marx argued that humans need to be free and creative in the way they produce from nature. This is not possible once the conditions, process, and results of production are owned by capitalists.

The above section has outlined how, under capitalism, humans are alienated from the product of their labour and prevented from realising their essence as creative and free beings. The current advanced late-stage capitalism (or neoliberal capitalism) further fragments the human-nature relation. The implications of this are discussed in the next section.

Neoliberal Capitalism, Sustainable Development and Nature

Neoliberal capitalism currently drives the politics and economics of the global system (Heynen & Robbins, 2005). Broadly speaking, capitalism follows the logic of capital and its ruthless agenda of exploitation, privatisation and commodification of nature. More recently, especially since the 1980s, this capitalism has taken the form of neoliberalism which can be understood as a particular stage of capitalism. Neoliberalism is an ideological and political project attempting to govern individuals and the state and break down trade-barriers and deregulate the market (McCarthy & Prudham, 2004).

Neoliberalism is a complex process involving a conglomeration of "ideological commitments, discursive representations, and institutional practices, all propagated by highly specific class alliances and organized at various geographical scales" (McCarthy & Prudham, 2004, p.276). This thesis asserts that Sustainable Development Discourse (SDD) is a neoliberal political and ideological project that poses as a set of objective truisms about nature and social relationships to nature.

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Under neoliberalism, all transactions are conducted within the framework of the market. This has implications for human relationships to nature. As McCarthy and Prudham(2004) argue: "Neoliberalism is also an *environmental* project, and ... it is *necessarily* so" (p.277). The significance of neoliberal capitalism for this thesis is that under this regime, social relations to nature are configured and reconfigured ideologically. Heynen and Robbins (2005) argue that the neoliberal agenda involves the governance, privatisation, enclosure and valuation of nature.

When seen in this light, neoliberal capitalism is best conceived as a process rather than a 'thing'. (Heynen & Robbins, 2005). The process of neoliberalisation is highly destructive on nonhuman nature because it compromises ecological integrity in the face of ever-expanding global markets. Nature is considered a resource and it has become subject to the processes of privatisation and exploitation by individuals and corporates. Nonhuman nature also becomes valued and treated as a commodity through pricing (Heynen & Robbins, 2005).

In this thesis, I outline SDD as a complex, and at times contradictory, assemblage of ideological commitments. It clearly includes the capitalist ideological commitments to nature as an economic resource and tradeable commodity; as something that can be privately owned and has a use-value in economic terms. But it has also incorporated environmentalist concerns of limits to growth and crass consumerism, while still promoting economic growth as the answer to environmental issues. Sustainable Development is primarily a discourse that attempts to greenwash capitalism. The political strategy is a successful one; for rather than rejecting environmental concerns, it incorporates and subsumes them into the dominant neoliberal agenda (McCarthy & Prudham,2004).

Ideology

The Marxist concept of ideology is widely reworked and debated within academia. Ideology is central to this thesis and so it is important to work through some of the issues related to its definition.

Ideology is referred to—in all the articles— as a unifying thread to refer to:

a) a set of ideas that legitimate dominant power relations that allow the continued exploitation of the environment and nonhuman animals as an 'inferior class of beings';

b) the way people as social actors make sense of the world, including the false demarcation between the natural and social wold. This includes understandings of nature as commodity, resource and ecosystem service for humankind;

c) the production of a (neoliberal) subject position for social actors, most dominantly the understanding of humans as 'managers' of nature.

It is used here in a very specific way, and I draw on the work of Karl Marx (1818-1883), neo-Marxist theorists such as Stuart Hall (1996) and post-Marxist theorists such as Ernesto Laclau (2006). My use of ideology allows a focus on what Hall

calls ‘the ideological effect’; referring to ideology as a system of representation that has “effects for the maintenance of power in the social order” (Hall, 1996, p.136). Ideology in this sense is a set of ideas or mental framework including imagery, concepts and languages (Hall, 1996) . Ideology also refers to ideas characteristic of a dominant social class that serve to legitimate political relations of domination (Eagleton, 1991). Particular ideologies can come to dominate an historical bloc, and their configuration as a ‘system of representation of the world’ is critical to establishing social consensus.

Hegemonic ideology is able to establish a form of social consensus through representing the world in a way that is “unifying, action-oriented, rationalizing, legitimating, universalizing and naturalizing” (Eagleton, 1991, p, 4). Through the various articles in this thesis, I have demonstrated how these ideological strategies work in relation to the representation of nature in broad socio-historical terms and within specific policy contexts.

For example, in the first article, I demonstrate how the ideology of ‘nature as separate from humanity’ was firmly established through the Enlightenment project of naming, classifying and ordering the natural world. Through this process, the idea of nature as something that is ‘out there’, and that we can have some kind of truthful access to it, imposed, through science, a certain unity or coherence about the way nature is now dominantly understood. As this article serves to demonstrate, it also rationalised and legitimated the framing of the human-nonhuman relationship in terms of superior/inferior. It permits nature nature to be depicted as something outside of human society; something that needs to be tamed and conquered, bent to submission in the interests of humanity. Hence, we have the modern-day understanding of nature as resource for economic growth or ecosystem service operating as a life support system for humankind. Such ideologies become naturalised so they are understood as ‘just the way things are’ and they become devoid of their historic or political context.

Yet dominant ideologies of this kind are always situated within and are integral to the mode of production. This is an insight from Marx, expressed in the following quote:

> The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men… the same applies to mental production as expressed in the language of politics, laws, morality, religion, metaphysics, etc. (Marx & Engels, 1965, p. 47)

As Marx and Engels (1965) state above, the Capitalist Mode of Production (CMP) includes both material activity (mode of production) and material intercourse (relations of production) *and* ideology as integral or internal to this process. This is why Marx and Engels use the word *interweave.* Politics, laws, regulations, language, ideas, concepts, morality and religion are all interwoven with the material economic practices and relations.

A Gramscian reading of Marx suggests that the economic base and the political and ideological superstructure together form its integral elements. But what

exactly is the economic base and how does it relate to nature and to ideology/policy? First, the economic base refers to the foundation of all economic activity: that is, natural conditions. By natural conditions, Marx refers to human's biophysical make up and also the natural world upon which s/he acts and transforms. This includes geological formations, climate, soil and other natural entities and systems (Jakubowski, 1976). Second, humans transform the natural material base through productive activity. Productive activity occurs through human relations, that is, production relations which are formalised and expressed politically and ideologically. Policies, discourses, laws, ideology are internal to the mode of production.

The interesting point for this thesis is that ideologies cannot be considered in any way as separate from the mode of production or from nature as the necessary basis of all existence. Historical change occurs through this dialectical interplay between the CMP and the formation of ideologies. As Marx and Engels write in *The German Ideology:*

> This conception of history depends on our ability to expound the real process of production, starting out from the material production of life itself, and to comprehend the form of intercourse connected with this and created by this mode of production (i.e. civil society in its various stages), as the basis of all history; and to show in its action as State, to explain all the different theoretical products and forms of consciousness, religion, philosophy, ethics etc., and trace their origins and growth from this basis … it does not explain practice from the idea but explains the formation of ideas from material practice. (Marx & Engels, 1965, p. 58)

Thus, ideologies do not simply arise out of the economic base as a 'reflection' of its character. Rather, politics and ideology 'overdetermine', in Althusserian terms, the economic base.

Further the dialectical interplay between the economic base and the political and ideological superstructure is a critical point to note for this thesis. The CMP unfolds historically through this dialectical interplay. The ideological meta-narratives of capitalist development as scientifically grounded progress (tied up with humanist views of our right as humans to exploit nature for our own benefit) remain at the core of all specific contingent/overdetermined variations of capitalist ideology as these manifest across time and space with the CMP unfolding. That is, the neoliberalisation of sustainability is fundamentally part, but a distinct variation at the same time, of the contemporary form of the capitalist ideology of nature.

Ideology is about how capitalist forms of relations of production are presented in a way that normalises and naturalises and legitimates them. The interests of capital (to own and control the conditions, process and results of production which is at the basis of labour's exploitation and the destruction of the natural world) are legitimated by being presented as the 'general interest'.

Ideologies serve particular interests by obscuring the relations of power embedded in any particular mode of production. Another useful way of thinking about

'ideologies' is to think of them as ideas, beliefs and values that are constitutive of what Antonio Gramsci (1891-1937) calls 'worldviews'. Worldviews, from a Gramscian perspective, govern "everyday perception and practice" and produce hegemony (Hill, 2007).

Discourse

Discourse is a term produced by Michel Foucault and refers to a way of giving meaning to the world. It has a materiality in that it has real effects on lived experience. A discursive field is constituted by ideologies or competing ways of making sense of the world (worldviews). A discourse has materiality – that is, real effects on lived experience. Discourse is ideological in the sense that it becomes a taken-for-granted representation of the world (Olssen, Codd, & O'Neill, 2004).

Discourse, then, offers a range of subject positions and embodies wider power relations such as class, gender, race of species interests. Discourses on the environment (for example dominant SDD) primarily privilege the interests of the human over the nonhuman 'other'. They are also linked to class interests as the global capitalist class seeks to smooth over environmentalist opposition and "expand opportunities for capital investment and accumulation by re-working state-market-civil relations that allow for the stretching and deepening or commodity production, circulation and exchange" (Heynen, McCarthy, Prudham, & Robbins, 2007, p.10)

As this thesis demonstrates, by articulating environmentalist ideologies with the neoliberal tenets of markets, environmental management and technological solutions, there has been a reworking of previously radical environmentalist and SD opposition. Sustainable Development Discourse (SDD) is the result of a neoliberal reconfiguration of socio-nature (the relation between the social world and nature).

The social-nature relation has always been a central concern of environmental education (EE). EE provides a unique context within educational settings to engage students in critically in a pedagogy of resistance to dominant socio-nature relations based on dominance and violence. However, in New Zealand EE has historically not been genuinely critical or based on transformative / emancipatory politics. The following section outlines briefly the historical and current status of EE in New Zealand and its current shift toward sustainable development discourse.

Environmental Education in New Zealand

Environmental education has traditionally been concerned with developing in students an appreciation of their place in the natural world. Lucie Sauvé (2005) calls this the 'naturalist current' in EE and argues that it is associated with traditional practices in the discipline. With recognition of the intrinsic value of nature, the naturalist discourse has old roots, especially if one considers the insights of the Romantics. For example, Rousseau argued that the natural state is good and should form the basis of education (Rousseau, 1979). The naturalist

current regards the natural world as valuable, independent of the resources it provides for human economic and social activity (Sauvé, 2005).

The form that environmental education (EE) takes in New Zealand can be analysed in relation to Sauvé's (2005) identification of main currents in environmental education. In traditional EE in New Zealand, readily identifiable currents include the naturalist, conservationist/resourcist, systemic, scientific and value-centred.

With roots in outdoor education, nature study and conservation education, traditional EE was primarily science focused (Berryman & Sauve, 2013; Eames, Cowie, & Bolstad, 2008). It placed high value on ecological understandings of the interrelatedness of all life on Earth, including "man" and his surroundings (Stevenson, 2007; Hume and Barry, 2015). In New Zealand, a naturalist, conservationist current was evident from the very emergence of environmental themes in the curriculum. This occurred in 1942 with the establishment of the secondary syllabus core. In 1942, the Thomas Report (secondary syllabus core curriculum) suggested that an important aim of science was to enable the student to develop a basic understanding of 'man and his environment'. Despite the fact that a formal environmental education programme had yet to be developed, the importance of the natural world (naturalistic discourse) in educating the young was established.

However, the emergence of a discourse of EfS and EfSD, especially since the 1990s, has led to a significant paradigm change in EE. Environmental education in schools in New Zealand is essentially part of a larger global agenda of environmental education initiatives (most notably the 1992 Rio Earth Summit Agenda 21), which have manifested locally. The formal establishment of the concept of Education for Sustainable Development (EfSD) at the 1992 Rio de Janeiro United Nations' Conference on Environment and Development (UNCED), has given governments internationally, including New Zealand, a base from which to launch their own curriculum initiatives (UNCED,1992). This discourse, while still purporting to hold onto the environmentalist ideals of conservation and environmental protection, introduced a broader scope for environmental education based on the premises of sustainable development.

The currents identified by Sauvé (2005) above indicate a convergence of influences in the development of EE/EfS such as curriculum and educational research paradigms, the politics of environmentalism and conservation, and the broad context of current SD. Within these political and educational movements, a uniting thread is the stated focus on citizenship education, environmental improvement and a significant focus on an ecologically-based understanding of human interdependence with the natural world.

The centrality of science in environmental education since its earliest days reflects, in part, the strong location of environmentalist thought in the Western science of ecology (Tulloch, 2013). This is not surprising, given the strong tie of EE to the environmental conservation movement. Suave (2005) argues that this reflects conservationist/resourcist currents in EE. This naturalistic/

conservationist/ resourcist discourse is evident during the 1980s and constituted a worldview that stemmed from environmentalist thought.

Sustainable development is the most recent current in environmental education. However, it is not a straightforward concept, and its 'take-over' of traditional environmental education is the result of a series of complex re-articulations of the environment with 'economic growth' (Tulloch & Neilson, 2014)

Environmental and Sustainability Education

My focus on environmental education is a response to debates in the field of environmental education and the perceived shift to education for sustainability as the dominant discursive position.

The shift toward sustainable development in EE has been the subject of "a fierce if underground debate" within the educational community (Irwin, 2012). While being heralded as progressive by some educationalists, it has also been met with unease by others internationally (McKeown and Hopkins, 2003; Jickling and Wals, 2013; Jickling, 1994). Jickling and Wals (2013), for example, argue that the reframing of EE in terms of EfSD has neutered the educational potential of EE through its "a priori commitment to sustainable development" (Jickling & Wals, 2013; Tulloch, 2009).

As noted, the shift from EE to EfS or EfSD is a result of UN mandates that have been disseminated via the transnational state transmission belt. Yet this move to sustainability contains many readily identifiable paradoxes. As discussed earlier, SDD is the result of a series of complex articulations and re-articulations of ideologies of nature and the environment with the neo-liberal capitalist agenda of 'economic growth' (Tulloch & Neilson, 2014).

Despite this shift, however, there have been some continuing threads of thought in EE. At least three foci have remained constant: the emphasis on educating the young as future citizens; a focus on nature/ environment; and the significance of human relationships to nature. Yet there have been fundamental shifts in how these phenomena are conceived. For example, within SD, nature is predominantly conceived in terms of utilitarian values and the ecosystem services it provides for humankind (Redford & Adams, 2009; Castree, 1995). As Michael Bonnett argues, "[t]his leads us up against a set of very profound issues that lie at the kernel of any approach to environmental education: what *is* nature and – crucially – what should be our relationship to it?"

This question is at the critical edge of environmental education. (Bonnett, 2003, p.555). I would also argue, building on a point made by David Orr (1991) that we need to critically examine the issue of what education is for. Orr (1991) has convincingly argued that contemporary education, with its epistemological commitment to conveying certain objective knowledge, theories and concepts to the young, misses elements of what could be a critically transformative education.

According to Orr (1991), "[t]he way our education system has prepared us to think about the natural world" is in terms of seperatedness (p.53). He argues that this ideological commitment has important historical precedents including the Cartesian separation of self and object. The epistemological assumption of self as cogito is at the base of understandings of human rationality (Fendler, 2003).

'Nature' is often taken to be self-evident and common-sense in curriculum policy documents. Ideological constructs of nature have profound implications for how we orient ourselves to each other and to the natural world. Michael Bonnett (2003) has provided an excellent overview of "notions of nature", which may be considered as ideological. He writes, "[i]n other words, 'nature' is rarely, if ever, an innocent category. It is, rather … 'fixed' in specific ways from particular perspectives and with particular implications for how we might behave toward it and each other" (p.?).

The domesticating function of schools and curriculum

It is said that Karl Marx (1818-1883) himself did not have much to say about education. While this may be true, he did argue that in capitalist society, education is a 'tool of ruling class interest' (Young, 1973). This tradition of regarding education as a tool to serve particular interests of the dominant ruling class is a key insight developed by critical theorists. It is one that is central to this thesis as I explore the ways in which EE curricula statements have come to privilege a neoliberal political agenda of sustainable development. In furthering a neoliberal agenda, EE inadvertently supports the goals of economic growth through the pursuit of free market global capitalism. In doing so, it socializes students into the status quo. Most frighteningly for educational ideals, it also constitutes the domination and colonisation of their very being. What is consistently ignored in much research on EE is the ways in which the framing of student's experiences and understandings of nature is an act of domestication (Freire, 1970/ 2005).

Curriculum here is understood as a "social and political construct that changes over time in response to a wide range of factors and influences, not only those recognisably internal to the 'education system' (McCulloch, 1992, p.9). The relational processes at work in curriculum construction, including the constraints of dominant ideologies in both education and larger society, are of critical significance. National curriculum documents provide an opportunity to analyse the normative educative, political and metaphysical assumptions therein. These constitute the 'hidden curriculum'; those ideologies, worldviews and values that can be inferred by not only what is written, but that which remains unstated. An analysis of the hidden curriculum can also reveal the nature and scope of the knowledge that is legitimated and privileged in particular learning areas. A critical reading of policy statements can demonstrate a normative political agenda based on particular ideologies.

In this thesis, it is argued that the reconstruction of subjectivities in the neoliberal era requires the cultural inscriptions of beliefs about nature. The education of children as future citizen-consumers and workers in the current neoliberal era involves a commitment to markets and an understanding of nature in instrumental terms as a commodity and resource.

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Thus, curriculum policy clearly does not occur in a vacuum and a critical reading of the New Zealand social and ecological context forms an important backdrop to any discussion of environmental education. Below, I will discuss the New Zealand context and the environmental concerns that indicate the urgency for a genuinely critical environmental education.

The New Zealand Context: eviction from paradise

New Zealand presents an interesting case study of human alienation from nature. It is a land of deep contradictions and unrest both geologically and politically. Geologically, it is the "most isolated large archipelago on the planet" (Towns & Ballantine, 1993, p.452). Its unique geographical isolation has resulted in a high degree of endemism, making it a 'biodiversity hotspot' (rich in taxonomically unusual species) for conservationists wishing to concentrate their efforts (Myers, Mittermeier, Mittermeier, da Fonseca, & Kent, 2000). Not unsurprisingly, however, New Zealand's exceptional array of ecosystems including distinctive evergreen forests, wetlands, grasslands and marine environments are now under threat (Eames & Barker, 2011).

Existing for 80 million years in total isolation, New Zealand was the very last archipelago to be inhabited by humans. Since then (approximately 1000 years ago), its exceptional endemism and biodiverity has been mirrored only by an unduly rapid loss of habitat, endemism and biodiversity. The process of 'settling New Zealand' by early European (pakeha) colonists, including the forced alienation of Maori from their land, has resulted over time in ecological collapse. Early settler companies in New Zealand promoted it as a 'labourer's paradise' due to its rural farming potentialities, plentiful wildlife and fertile soil (Bell, 1997). Paradise was constructed as a "land of opportunity, of natural abundance" (Bell, 1997, p. 146) . Yet the resultant over-exploitation of natural resources, over-harvesting of marine life and habitat destruction caused by the introduction of alien species and the conversion of primary vegetation to farm land has precipitated serious environmental issues.

The multidimensional environmental issues arising from the conversion of the land for farming and forestry and the introduction of alien species by European colonists, especially since 1840, in New Zealand are enduring. A once vibrant world of bird song and evergreen forest, New Zealand has lost "forty per cent of its terrestrial birds" (Clout, 2001, p. 415) In addition there are ">40 % of remaining bird species classified as threatened: a higher proportion than any other country" (Clout, 2001, p. 415). Only 22 % of the original extent of primary vegetation remains (Myers, Mittermeier, Mittermeier, da Fonseca, & Kent, 2000) and many endemic invertebrates, reptiles and plants are also threatened (Clout, 2001).

In addition to this environmental crisis backdrop is also a crisis of representation of New Zealand's environment (Ateljevic & Doorne, 2002). Its clean, green, tourism image is far from reality. In New Zealand, a hotspot for biodiversity and endemism, the rapidness of environmental decline has been alarming. As Claudia Bell explains, the myth of a rural pastoral nation, the backbone of the New Zealand economy, is central to identity politics and a national sense of belonging. *Tulloch, L. (2015).* Is Emile in the Garden of Eden? Ideologies of Nature. *Policy Futures in Education* 13(1) 20-41.

The social construction of New Zealand's natural world as 'paradise' rests in part on New Zealanders as 'people of the land' who "tamed the wilderness to a bountiful Eden" (Bell, 1997, p. 147).

The 'bountiful Eden' and the rural mythology of people connected to the land go hand-in-hand. These mythologies are important because they are more than a static set of values and beliefs; they are active because they continue to shape present lives (Bell, 1997). They represent, "the active relationship between the present and the past, subjective and objective, poetic and political" (Samuel and Thompson, 1990, p. 5. Cited in Bell, 1997). Bell outlines two 'pioneer-in-nature' myths including the "frontier style slash-and-burn way of taming nature" (p. 147). The second myth is that of garden paradise and a great way of life (Bell, 1997).

Recognition of the process of colonization and Western imperialism are critical to fully understanding ideologies of nature in the context of New Zealand. As an ideology, this particular view of reality is linked to wider power relations. As such it ignores the violence of colonization processes within which both indigenous societies and the natural world were harmed. Drawing on ideologies of superiority, Plumwood (2002) argues that indigenous peoples were constructed by European colonists as 'primitive' and closer to animals and children; not human. To name the world on their own terms, to construct nature and humanity as binary opposites, to enframe all that is 'not-human' as the 'other', is a powerful mechanism of domination. Naming 'the other' allows the colonist to divest the 'thing named' of its history and meaning (Tuhiwai-Smith, 1999). The process of naming described above allows a reshaping of relations between the human and nonhuman (however these might be constructed). For example, this modernist logic regards land as having a 'use-value' and hence it becomes a 'commodity' and acquires an exchange value. The relation to the land, framed in this way, is one that stresses its instrumental importance for humans.

Colonialism followed the logic of capital and its ruthless agenda of exploitation and commodification of nature. However, the above discussion illustrates how Western imperialism is not only a project of economic expansion, but also one of capitalism in which social relations to nature ideologically configured and reconfigured.

Human-Animal Relations

James Rachels (1990) poses the problem of traditional morality, based as it is on the assumption that only humans are capable of having certain rights bestowed on them. He asks: "What becomes of all this, if man is but a modified ape?" (Rachels, 1990, p. 1). This question throws into stark relief a set of fundamental problems in human-animal/nature relations, especially since the advent of modernised agriculture and capitalist production patterns. The systemised cruelty inherent in the process of 'animals-becoming-meat' is based on the fundamental assumption that humans are superior to animals (Rowe, 2011). Never before have humans oppressed animals with the calculated violence and grand scale as during this time period.

According to this insight, humanity has reached a level of narcissistic grandeur that may well constitute the tipping point of our survival. Positioning ourselves on the outside of nature, we hold tight to the delusion that we are apart from nature and the animal world. It seems that we are playing an acting part in the Western plot of ever escalating domination of nature and animals. And it is having dire consequences on the non-human. We need to reconsider human-nature relations and begin to see ourselves as part of a vast network of beings, many of whom predate our own existence

Part of what Eric Fromm calls the "great illusion" of the Enlightenment/ industrial age has been the quest for knowledge and the domination of nature (Fromm, 2007). Enlightenment includes the notion of 'species', which is not a biological fact but rather "an ontology and epistemology of hierarchical domination that energises structures of human supremacy over animals" (Rowe, 2011, p. 3). Such an understanding indicates the need for a critical and timely re-examination of environmental education, based as it is on the relationship between humans and non-human (or more-than-human) nature. I intend to unsettle dominant Western ways of making sense of the natural world and explore the ways in which the ontological and epistemological bases of environmental education default to speciesist presuppositions. of human mastery, supremacy and control of the more-than-human world.

The categorization of nature as 'environment' or 'natural resource'and as something separate from humans–and ultimately manageable–constitutes a form of 'framing' which renders it legitimately exploitable. In the same way animals are framed as 'other', demonised as pests, or "animals -becoming-meat" and ultimately "killable" (Giraud, 2013; Rowe, 2011). In addition, using Donna Harraway's notion of the cyborg – a cybernetic organism that is both a human and a machine, I argue in article five that in fusing the human body with the cultural inscriptions of science, capitalism and modernity, meat-eating fails to become simply a 'natural' process. That is, the personal body and the body politic are one (Haraway, 1991). Our children's bodies become culturally inscribed with the technological codes that become their very flesh. This is a form of (mis)education (Rowe, 2011).

All philosophical inquiry has at its core the perplexing issue of human–animal relations. As such, it is crucial that we centre our analysis on the pivotal unease with which the animals' gaze bestows upon us. As Derrida argues, to find oneself in a state of unease under the gaze of an animal raises critical questions about *who we are*. (Derrida, 2002) Only when we see ourselves in animals will we make progress in how they are thought of and treated by humans. Until then, capitalist processes of production and consumption will form the basis of our consciousness, including the reduction of animals to commodities and objects to possess, consume and dispose of at will.

Indeed, Derrida argues that humans are carno-phallogocentric and this needs to be challenged and deconstructed (Wright- Maley, 2011). Is this the place for a critical environmental education? The role of education on the treatment of animals is one that has been raised by scholars within the field of Critical Animal Studies (Wright- Maley, 2011). If public schooling education operates to

reproduce dominant ideologies and relations in its current form, might environmental education constitute a form of (mis) education? (Rowe, 2011) How can we change human-animal relations to one based on nonviolence and educate for interspecies communication and connection?

The position of animals in environmental education is a vexed question. Should this be a concern of environmental education? The perceived contradiction between environmentalism (narrowly understood in conservationist terms) and animal rights movement is at the heart of much of this discord (Wood, 2007).

Animal studies as an academic field emerged from this contestation of current animal-human relations. Some of the work in this field includes the development of post-humanist ethics that challenges the very distinction between animals and humans as a position to guide the human use and misuse of animals (Wolfe, 2011). Dominant forms of EE such as EfS/EfSD have at their heart the anthropocentric assumption that humans are separate from and dominant over nature. It entails a level of assumed superiority vis-à-vis other species. I think that these assumptions should form key themes behind an environmental education that is nonspeciesist. The reasoning behind this argument is that if we are to progress at all in the proper sense of the word, we need to begin with an education that fosters in children the skills to think creatively and critically about the world in which they live.

This is particularly pertinent given the character of the socio-nature relations that children are socialised into currently. The neoliberal stage of capitalism continues the theme of the domination of nature, but in more extreme and disturbing forms. Unprecedented and dire consequences for whole groups of animals who are subject to the animal agriculture complex, pharmaceutical industries and scientific research has resulted. Systems of social meaning-making systematically degrade them through transforming their bodies into objects of production, consumption, experimentation, and entertainment.

The exploitation of animals in late stage-capitalism is discussed in more detail in the final chapter of this thesis. However, at this stage, I would like to raise the question of how an ethical education might address our children's socialisation into such a horrific regime of domination. As Rene Dubos remarks: "The worst thing we can do to our children is to convince them that ugliness (cruelty) is normal" (Dubos, quoted in Orr, 1999, p.139).

Conclusion and future research directions

The ugliness of ecocide and mass animal agriculture is a reflection of our human selves in advanced capitalism. The death of nature, both symbolically and in real material terms, is a loss that may well be inconceivable on many levels. This thesis demonstrates that nonhuman nature is of critical significance for humans, not only as a life-support system, but also on cultural and spiritual planes.

In the *Economic and Philosophical Manuscripts of 1844,* Karl Marx was likewise concerned with the link between spirituality and nature. He writes, "[t]hat man's physical and spiritual life is linked to nature means simply that nature is linked to itself, for man is a part of nature" (Marx, 1959, p. 32). This is a significant point to make in relation to this thesis and one that is discussed in some depth in article one: *Is Emile in the Garden of Eden: Western ideologies of nature.* (Tulloch, 2015). Marx writes that nature is human's inorganic body and by this he means that nature is not only the means for survival but also that which constitutes "the instrument of his life activity" (Marx, 1959, p. 32).

The interchange between humans and nature is thus regarded by Marx as a fundamental condition of his existence and a source of "free, concious activity" though which he expresses himself. Marx's early discussions in the *Manuscripts of 1844* of 'species being' assert that nature is the object of human will and conciousness. This interchange is the very expression of him as a 'species-being' – that is, as a human. Humans produce through transforming nature and, in doing so, freely express their will. They produce objects not purely for survival needs but also as cultural forms.

Marx couples this trans-historical understanding of the human/nature interaction with an empahisis on its specific historical and materialist context. He argues that the labouring class within capitalist societies are forced to sell their creative capacity through which they transform nature into labour power. In doing so humans become alienated from themselves and hence from nature. It is this very estrangement from nature that renders us incomplete and fragmented as a species.

Marx's emphasis on the dialectical relationship between humans and nature and its connection to 'species-being' offers a holistic and historical approach to nature. I have attempted to frame this thesis within the insights such an approach can generate. Accordingly, the exploitation of nature and animal oppression that are at the root of many current environmental crises can be seen to be an expression of a mode of "practical, human material life" (Forkasiewice, 2014, p. 50).

As Forkasiewise (2014) points out, the exploitative nature of capitalist relations of production that result in the alienation described above is obscured by ideology – understood in a Marxian sense as false ideas (or illusions) about society (Small,

2005). Within this thesis, I have discussed and critiqued ideologies of nature in depth and attempted to trace their connections to historical materialist contexts. I have paid particular attention to the neoliberal ideologies that developed under global capitalism. I have demonstrated that these neoliberal ideological frameworks further support already taken-for-granted understandings through which nonhuman nature is exploited. Nonhuman nature becomes increasingly commodified and valued in terms of its usefulness as a life-support system and source of further economic growth. In other words, the instrumental value of nonhuman nature is given precedence over all other valuations, which works to justify the ongoing exploitation of nonhuman nature as 'necessary'. Within this discourse, the very idea that nonhuman animals and ecological landscapes might be given "equal consideration to those of humans is regarded as unthinkable" (Sorrenson, 2014). Rather, they become turned into objects, to be valued according to their use to be bought and sold in the global capitalist market place.

This general argument has grounded the specific application that focuses the thesis: demonstrating that neoliberal ideologies of nature have become dominant in environmental education policy through the vehicular idea of sustainable development. This has further intensified the nonhuman 'othering' that is at the heart of the Enlightenment project and modern science that represent the meta-narratives of the capitalist epoch. The ideological commitment to the notion that humans are in control of the natural world and can work within natural limits, while still expanding capitalist growth on a global level is dominant in these meta-narratives. They obscure the exploitative relations between humans and the nonhuman world.

The project of sustainable development is, on one level an attempt to green capitalism. It articulates ideologies of human progress through economic growth and technological advancement with those of environmentalism and social justice – all the while concealing the exploitative nature of social relations and social-nature relations under capitalism. While acknowledging there are limited natural resources and problems with 'unequal development', it suggests further that economic growth (rather than less) is the answer. It thus conveniently avoids directly confronting the violence toward the Earth and nonhuman animals that is a result of such growth.

This thesis has demonstrated how the ideology of sustainable development, is transmitted from the global nexus of the UN, to become entrenched in environmental education policy across various local contexts. Education for sustainable development (EfS) reproduces the dominant ideology that environmental issues are problems that can be solved. It focuses on small-scale solutions to local problems; engaging students in making decisions and taking environmental action; networking with local communities; and establishing sustainable practices in the school. The hope is that these children will become global citizens of the future, capable and competent, with the right attitudes, skills, and knowledge to build a sustainable society.

This educational approach seems grossly unfair because it can be likened to asking them to plug up the leaks of a sinking ship while ever more holes appear. Of course, the idea of an ecologically-minded, caring, knowledgeable and skilful

global populace is appealing and is one reason it has been taken up so readily in policy settings. It is a ruse because our children are inheriting a world with very serious ecological issues such as climate change, deforestation, biodiversity loss, land desertification, waterway and soil pollution and ocean acidification. Understanding and addressing these challenges requires a deep critique of the capitalist mode of production that is not possible within the surface-logic, problem-solving approach.

In addition, children are socialised into participating in the animal agricultural complex through various social institutions such as schools, religion, fashion, food and media. Yet animal agriculture is deeply problematic for the health of our planet, the animals themselves and our bodies.

The animal agricultural complex transforms animals' bodies into objects of production and consumption. Sorenson provides some insights into the extent of this violence toward animals which he calls "almost incomprehensible" (Sorrenson, 2014, p.xi). He calculates that the global meat industry kills 56 billion land-based animals each year and many more water-dwelling animals. The cruelties of factory farming, the manipulation of the reproductive capacities of animal bodies, live-shipping of animals, vivisection and sport hunting are some of the other travesties animals endure. According to Sorrenson, this suffering has intensified over the last century and is unprecedented.

The specific anthropocentric character of socio-nature relations that children are currently socialised into shapes their everyday realities. Public school systems are involved in socialisation through teaching children that animals are not subjects, in their own right, but rather objects in the process of becoming meat or food of some kind (Rowe,2011). The school system is a critical site through which atrocious acts of violence toward animals in agriculture become normalised. Through the formal curriculum, agricultural days, extra-curricular activities (school hunting festivals) and environmental education, the human-centred hierarchy becomes absorbed into children's psyches.

At this point, I would like to posit that we need to look at alternative models of environmental education based on ecopedagogy and empathic anthropomorphism whereby children experience an education based on non-speciesist premises and evolutionary kinship with animals.

The application of critical theory to environmental education has already resulted in theorised forms of curriculum that challenge consumerist society, problematize the rise of industrialism and the relations between society and nature. (Hart & Nolan, 1999). Environmental and sustainability education can build on this foundation to develop an education that is deeply philosophical in nature and that radically aims to look into "the eyes of the other" (Derrida, 2002, p. 381). The significance of our contemporary 'mode of being' in relation to animals could become the heart of a truly radical environmental education. Derrida identifies particular modes with which we relate to the animal, "being *after*, being *alongside,* and being *near, being with*". (Derrida, 2002, p. 379). Should not environmental education have, at its heart, the stakes raised by Derrida?

> What is meant by living, speaking, dying, being and world as in being-in-the-world or being-to-wards the world, or being with, being-before, being-behind, being-after, being and following, being followed or being following, there where I am, in one way or another, but unimpeachably, *near* what they call the animal. (Derrida, 2002, p. 379)

I wish to add my voice to the growing call for educators to incorporate critical animal studies into their theory and practice (Rowe, 2011; Pederson, 2010). Environmental education is possibly one of the last vestiges of resistance within dominant school structures that can attempt to provide a critical education with respect to the moral status of nature and nonhuman animals in modern Western capitalist society. I argue for an education that re-enchants nature and empowers students to deconstruct the processes through which nature and living animal bodies are transformed into discursive forms, physical objects, and commodities for exchange. The focus here is on moving beyond the hierarchy and the separation between human and non-human nature and the latter's commodification, to the sense of their organic unity; to the one-ness of the living planet.

Michael Bonnett (2009) discusses the need for an education that is based on taking seriously the notion of nature in environmental education. This means not just considering nature as 'biosphere' or 'resources' but also the metaphysics of nature. Bonnett (2009) argues that nature's "underlying mystery and fluidity" is often lost through scientific explanations (p.180). Environmental and sustainability education has traditionally been heavily reliant on its science base. It's not that science is unimportant, but that it is "quite irrelevant to the sheer existence of things" (Bonnett,2009, p.180). Indeed, imposing scientific explanations on students' experience of nature can be destructive. It orders the mind to comprehend the world in particular ways, erasing the primordial mystery (Bonnett, 2009).

Here we can call upon the Green Man, before he became de-souled. Being able to sense ourselves in nature, recognising our immense possibilities and our deepest vulnerabilities is important in developing sensitivity and empathy. Through an education that values providing these kind of experiences, children can acquire a deep respect for nature as having its own integrity – its own life force and intrinsic value. Heeson Bai (2009) raises a pertinent question: "Could it be that this ecocide is due to humanity's inability to perceive and feel the intrinsic worth of the other – in this case, nonhuman beings?" (p.135).

Bai (2009) argues for an education that transforms our consciousness from a state of psychic numbing to one of enchantment with nature. The Cartesian perception of nature as machine and animals as objects has been seared into our collective consciousness. Bai suggests that we project this perceived reality onto the world and treat it in destructive ways.

This thesis has provided a challenge to dominant capitalist instrumental ideologies of nature as they manifest in policy and educational settings. The fragmented and mechanistic approach to nature that defines the capitalist epoch leads to what Bai

(2009) calls ‘psychic numbing’. A future frame for environmental and sustainability education should focus on a post-capitalist metaphysics that will embrace the Green Man, be humble in his presence, and allow the mystery to reveal itself through experiences in and with nature.

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Article One:
Is Emile in the Garden of Eden? Western ideologies of nature

This paper is particularly important in setting the scene for later analysis of ideologies of nature. In this article, I discuss the socially constructed division of humans and nature. I also analyse the ways "nature" is ideologically represented in Western society over time, tracing some of the theological, philosophical and science-based roots of such thought (Castree, 1995).

Several separate but connected ideological constructions of nature are identified. These include: Animism and organic ideologies of the 'nurturing mother'; Judeo-Christian ideologies of nature with reference to the fall from the garden of Eden and dominionism; and rationalist and bougeois ideologies of nature.In particular I argue that bourgeois ideologies of nature have their historical origins in Western capitalist societies and are embedded in post- Enlightenment science. I explore the Enlightenment Project and its endorsement of modern Western scientific and technological principles (Merchant, 2005). It is argued that ideological representations of "nature" as pristine, untamed and unproductive wild go hand-in-hand with ideologies and practices of domination and control in the name of scientific, technological and capitalist economic progress.

Crucially, this article sets the scene to describe how the human-nonhuman relationship is ideologically formed. Through the Enlightenment process of naming, classifying and ordering the natural world ideologically, the human-nonhuman relationship is framed in a way that functions to subjugate the nonhuman. For example, Descartes depicted the animal as a mere machine, responding to external stimuli, critically different from and essentially constructed as *Other*. Through this exploration of ideologies of nature, I hope to demonstrate that they are based on the premise of a view of the nonhuman as something "out there" and separate from society and humans.

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Is Emile in the Garden of Eden? Western ideologies of nature

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Abstract

This paper will explore ideologies of nature including the 'Garden of Eden' and 'wildernesses'. It locates these ideologies as morphing to accommodate the later trajectory of the Enlightenment Project and its endorsement of modern Western scientific and technological principles. Beginning with the premise that nature is unknowable, this paper offers a critique of dominant Western cultural ideologies that function to domesticate and order nature. This goes hand in hand with ideologies and practices of domination and control in the name of scientific, technological and capitalist neo-liberal economic 'development'. The assumption that the boundary between nature and humans is crossable through scientific and technological knowledge is one that can be explored and challenged by examining how such knowledge is from the outset ideologically constructed. This paper will look at the concept of alienation from nature (as expressed by Jean-Jacques Rousseau in 'Emile' and Karl Marx) to explore how modern schooling and the capitalist economy shape human-nature relations.

Keywords

nature, ideology, alienation, critical discourse analysis

Introduction

Jean-Jacques Rousseau (1712 1778) believed in the immortal soul. He wrote, "I sense my soul. I know it by sentiment and thought. Without knowing what its essence is, I know that it exists" (Rousseau, 1979: 283). Many of us consider nature in the same way. Sense experience, emotion and thought are critical ways that humans come to believe that they *know* nature. But can we know its essence?

This paper sets out to explore the many and tangled webs of thought on nature. Drawing on Marxist thought, it is argued that nature is an ideological construct linked to particular historical social and economic conditions. In the West, ideologies of nature have been strongly influenced by a number of strands of thought. Eighteenth and nineteenth century ideas of nature consist of a recognition of "Enlightenment and Romantic themes, with at best a nod in the direction of an hypostasized and unified 'Judeo-Christian' tradition"

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(Alder, 2006: p. 5). Themes that begin to emerge from these explorations include: nature as a terrestrial paradise; divinely ordained human stewardship over nature; nature's death and plunder; nature as a primordial wilderness, nature as nurturing mother; and nature as brute matter, to name a few (Alder, 2006).

I have taken Jean-Jacques Rousseau's concept of nature as an interesting illustration of the complexity of ideas of nature. Rousseau has been dualistically situated in the camp of both the Romantics and Naturalists of the Eighteenth Century (Viroli, 1988). Indeed, Maurizio Viroli (1988) argues that Rousseau's thoughts were unique in eighteenth century philosophy. He writes that, "unlike those who consider human reason capable of finding an answer to the important questions concerning the nature of the universe, he draws attention to the limits of the human intellect" (p.17). While situated somewhat in Enlightenment thought and the belief in reason and the sensation as the basis to understanding nature, Rousseau also maintained an element of mystery and the unknown.

The mysterious and the unknown are important spaces to develop further thought on nature. They counter the dominance of rationalist and Enlightenment thought that seeks to know and dissect nature. It also signals the importance of philosophy and critical thought in challenging dominant ideologies (or systems of belief) that may offer us impoverished versions and experiences of nature.

Erich Fromm argues that the experience of human separation from nature fuels the passion to become whole again through union with nature. Human wholeness, says Fromm, was the state in the Garden of Eden. Dispelled, humans search for an existential reality that overcomes separateness from nature, otherwise they will become insane (Fromm, 2005). This, says Fromm, is the particular problem of their birth. The historical locatedness of humans as individuals in a particular time and place in a particular time and place, means they are subject to the alienating features of any particular social order and the ideologies that already exist.

Ideology

In this paper I use a Marxist concept of 'ideology'. Ideology itself is a contested term and one that is used in a very specific way by Marx. I will use the definition as outlined by Richard Miller (1991) in his discussion of Marx's use of ideology. According to Miller, ideologies as discussed by Marx refer to "socially significant systems of belief, presupposition, or sentiment that depends of false perception of reality, the currency of which is due to truth-distorting social forces" (Miller, 1991: 72).

Historicization is an important aspect of this. Ideologies understood as 'systems of ideas' not only have social origins for Marx, but they also represent certain social interests that are integral to a particular historical epoch. In the case of capitalist society, the class interests of the bourgeoisie are represented through ideological means. In particular, the propagation of the belief that the economic relations are in everyone's interest is a good example. These ideologies represent the hallmarks of the Enlightenment tradition including human progress, technological development and mastery over nature. Through these ideologies, the true exploitative relations between the bourgeoisie and proletariat in capitalist society are concealed (Miller, 1991). The demystification of exploitative social relations and corresponding destruction of the non-human world is an important critical educational imperative.

Karl Marx (1818 1883) argued that, "[t]he production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material

intercourse of men" (Marx and Engels, 1965: 472). This material basis means that ideologies are an expression of the relations of production, rather than an independent and creative force (Marx and Engels, 1965). According to Marx, ideologies also conceal the true nature (essence) of things. He referred to this process as *fetishism*. Marx wrote, "[t]he sense perception of a fetishist differs from that of a Greek because his sensuous existence is different. The abstract hostility between sense and spirit is inevitable so long as the human's sense for nature, or the human meaning of nature, and consequently the *natural* sense of *man*, has not been produced through man's own labour" (Marx, cited in Bottomore, 1963: 175). Thus ideologies also orient humans to a way of 'being' in the world, and through this process humans can become alienated from others and from non-human nature (Parsons, 1977).

Ideology has an historical character; it can only be understood through reference to a specific mode of production. For Marx, social history is a result of contradictions in material forces and is not driven by ideas. The capitalist mode of production, according to Marx, would have developed regardless of "the lust for gold, the greed for social power and the desire to dominate" (Harvey, 1982: 21). The formation of the capitalist mode of production is the result of powerful material forces. The inherent contradictions in the preceding modes of production led to "the rise of the capitalist class and the formation of the proletariat." (Harvey, 1982: 27). Capitalists as a class share common interests. They are "the personification of capital" (Marx, 1894: 824). They internalize the desire to accumulate capital for its own sake (Harvey, 1982: 28). Most importantly, this drive is seen to exist independently of the capitalist's will (Harvey, 1982: 29).

It is clear that ideological domination is experienced by both the dominant class and the oppressed. It is a form of what Erich Fromm (1900 1980), whose work builds on that of Karl Marx, calls "spiritual and moral captivity" (Fromm, 2005).While humanity is in the grip of "ecological and economic catastrophe" it is at the same time bound by a form of rationality that justifies such destructive action (Fromm, 2005: 7). At the root of this conundrum is the economic imperative of capital that seeks constant accumulation, and the corresponding ideology that constructs human and non-human nature as divided entities.

Language and ideology are inextricably connected. Language is not a direct reflection of the world that we experience as humans. Patti Lather (1996) argues that there is a need for academics to contest how "language . . . assumes a mirroring relationship between the word and the world" (p. 527). Gramsci describes how acceptance of language at face value is limiting ("limit ideas") (Hill, 2007: 104).

An example of how language constrains thought is the academic scientific construction of non-human nature in terms of 'biological diversity' or 'environment'. To write about or analyze nature within academia, the wider political arena and the everyday world requires a level of conformity with "the normalized, routinized, commodified structures of taken-for-granted intelligibility" (Lather, 1996: 527). The perceptions, values and beliefs that accompany the language used condition those subject to them to view non-human nature in a particular way (Dryzek, 2005: 9).

Ideologies of nature

Ideologies of nature are not neatly packaged in pre-defined categories. Neither are they 'free floating', abstract ideas. Rather they are messy and divergent, the result of historical

trajectories that intersect and cross (Biro, 2005). By way of understanding the complexity of ideas about nature it is necessary to attempt to unravel these historical genealogical influences. In doing so, it becomes apparent that ideologies are interconnected with other (often contradictory) ideologies and the very real material conditions of a particular time and place (Biro, 2005). This Marxist reading of ideologies of nature regards them as inextricably linked to the material conditions of human existence. It follows from this that ideas about nature are not a 'universal' or self-evident, but rather socially and historically conditioned.

An important question is why particular constructions of nature become dominant. The construction of nature as a set of various and often competing ideas and assumptions draws attention to its historical, economic and socio-political contexts. The historical contextualization of modern-day ideas of nature is an important exercise. It allows exploration into how this concept is attached to particular discourses and the meanings, as well as the values and relationships, these support. For example, the evocation of nature as a "vast, evolving, nested set of mutually supporting homeostatic systems", as in the ecological sciences, has particular meanings and political implications attached to it (Whiteside, 2002: 9).

Ideologies of nature are often used to legitimate particular political and economic trajectories. Take, for example, ideologies of a natural Eden that spring from Judeo-Christian mythology. These ideologies hinge on notions of plenitude, benevolence and divine goodness, reflecting the theology of Thomas Aquinas (1225 74) (Kinsley, 1995; Worster, 1993). But this myth of benevolence has been critiqued as anthropocentric, supporting a worldview of nature as divinely created for human use (Kinsley, 1995). This paper argues that the biblical narrative that humans have a form of 'dominion' or stewardship over the Earth is articulated with ideologies of technological progress and environmental management that are central to the recent expansion of global capitalism.

The focus on 'mastery' or 'domination' is deeply entrenched in Western thought. James Glover argues that following the intellectual tradition of René Descartes and Francis Bacon, there remains a strong adherence to the belief in knowledge as based on rational thought, with humans as the observers and nature as the observed (Glover, 2000).The rational appropriation of nature through scientific experiments and conventions is coupled with increases in technology which allow humans to believe they can know that which is non-human.

As humans, just how deeply we hold particular ideologies of nature is critical to the way we relate to it. For example, Worster (1993) argues that eighteenth century ideologies of natural Eden are so deeply entrenched in modern-day American consciousness that they have formed part of the national identity. This version of the Garden of Eden takes the form of a tamed wilderness and is revealed in farmland, pastures and parks (Thompson, 1983: 85). This ideology reflects a pastoral view of rural life as 'natural' and an adulation of the peacefulness of the countryside. Alternatively, ideological representations of non-human nature as "brute matter" (Dryzek, 2005: 57), or "an intractable domain of utility and danger" (Argyrou, 2005: 1) sit uncomfortably alongside those of a tranquil countryside. The notion of dominion over the natural world may blind humans to the horrors and oppression of domesticated farm animals.

Further, many environmentalists take a deep ecology view of the Earth based on the work of Arne Naess, and would argue against the above anthropocentric view of a benevolent

nature and would see farm life as anything but natural (Whiteside, 2002). Thus, the idea of non-human nature and the related concept of 'wilderness' are social constructions and 'debating centers' (Whiteside, 2002).These ideas are drawn on in the political arena, in education, across cultures, in everyday life and in historical and philosophical contexts.

However, despite the 'taken-for-grantedness' of these concepts (or even perhaps because of their assumed 'naturalness'), they are always ideologically constituted. It is precisely this lack of critical investigation that makes these ideas so powerful, so deeply etched in human emotion and existence, and connected with spirituality and physical well-being.

The assumption that humans can 'know' non-human nature through scientific exploration and reason is historically specific to the Enlightenment period. This has coincided with an unprecedented loss of biological diversity and an increasing number of environmental issues. The truth claims of natural science have effectively established a physical 'natural reality', which has a powerful grip on the minds and hearts of those in the West. Henri Giroux (2001) proposes that science as a form of rationality is integral to Enlightenment thought, and he takes this idea further to link the knowledge it produces with broader hegemonic power relations.

Ideologies of nature are underscored by a particular ontological position of 'being' in the world (Fromm, 2007). In particular, it is argued that the positivist assumption that nature is "out there" and we can have "some kind of truthful access to it" is representative of an ideology that natural entities "have a *singular* being or is-ness potentially open to cognitive appropriation" (Castree, 1995: 34). Ontological challenges to Enlightenment thought that desacralizes nature and constructs nature and humanity as separate categories are important avenues for critique. Two distinct lines of thought that focus on a metaphysics of nature and humans are Marxist and radical ecological thought (including eco-feminist), which will be explored in this paper.

This opens up the quandary between materialist and idealist forces in this case between a realist position (the belief in an ontologically material and real nature) and an epistemologically relativist position (nature is a relativist construct) (Castree, 1995; Cronon, 1990). It is taken as a given in this paper that the natural world does exist, but that we can never entirely 'know' it. Instead we can approach the question of nature by studying how nature and economies, as very real material processes, interact in a dialectical fashion with ideas about nature (Cronon, 1990).

Furthermore, the boundaries created between nature and humans through these ideological mechanisms serve to illustrate the concept of alienation. Alienation of humans from nature has been a central concern from the beginnings of Western philosophy. The analysis of this problem has traversed both modernist and post-modernist thought and often entails diverse political trajectories (Zimmerman, 1994). For the purposes of this paper I intend to highlight the concept of alienation from nature according to Jean-Jacques Rousseau (1712 1778) and Karl Marx (1818 1883).

Historical intimacy: Ecology, economics and nature

Donald Worster (1993) eloquently depicts the importance of land and the earth in human history. He writes, "until very recently, almost all people lived as intimately with other species and with the wind and weather as they did with their own kind. To ignore that long intimacy was to distort history" (p.vii). Marx, however, did not omit to consider the

intimacy between humans and the land. Marx held a deeply materialist concept of nature and linked it indelibly to human labor. He writes:

> [l]abour is, in the first place, a process in which both man and Nature participate, and in which man of his own accord starts, regulates and controls the material re-actions between himself and Nature… By thus acting on the external world and changing it, he at the same time changes his own nature. (Marx, 1867: 257)

Marx outlines how particular 'economic epochs' can be defined by the instruments and processes through which humans interact with others and with the material conditions of their existence (Chandel, 1979). Non-human nature and humans are in continual dialectical interplay and both are transformed by each other through the process of labor (Parsons, 1977). History then, can only be understood through examining humans in terms of their work: "with *what* they produce and with *how* they produce" (Marx and Engels, 1965: 32). The corresponding ideologies of a particular epoch will coincide with "a definite form of activity" (Marx and Engels, 1965: 32).

It follows that to explore ideologies of non-human nature it makes sense to examine the particular 'form of activity' that it corresponds to. This is a way of exploring ideologies on non-human nature as they developed in dialectical interplay with a definite historical mode of production. Throughout this paper I will attempt to develop an understanding of particular ideologies as they are linked to particular modes and relations of production.

Central to Marx and Engel's concept of consciousness is the 'human-labor' process; that is, the "way in which men produce their means of subsistence" (Marx and Engels, 1965: 31). For Marx, an epochal 'mode of production' corresponds with human consciousness and so consciousness is always social; it has a real material connection to a reality external to itself (Chandel, 1979). According to Marx and Engels, "The production of ideas, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life" (Marx and Engels, 1965: 37).

However, while humans are conditioned by the productive forces of their material existence they are also able to act upon them. For Marx and Engels (1965), humans are not constrained by nature's laws (as animals are): rather they are conscious beings able to interact with nature to "produce their means of subsistence" (p. 31). Human 'consciousness' is a critical part of Marx and Engel's philosophy. For Marx and Engels it meant that humans are primarily social, active and thinking beings.

Philosophy and nature

The significance of philosophy to ideas about the natural world cannot be underestimated. Indeed, it is difficult to imagine any theory or idea about nature that does not have an underlying metaphysical foundation. Eugene Hargrove (1989) argues that there are two traditions in philosophy that have influenced Western environmental thought. These include classical Greek philosophy and early European philosophy. Hargrove (1989) maintains that classical Greek antiquity and post-Socratic Greek philosophy, in particular that of Plato and Aristotle, have had a strong influence on later thought on nature.

The ancient Greeks believed that Kosmos is the origin of the world and that customs were timeless (the way things have always been). Thus, history is a modern concept and is based on the idea of humanity and changes in conventions and customs over time (Zhang, 2006). The word humanitas was absent in classical Greek antiquity, and the current emphasis on

the separation of nature and culture was not made. However, Aristotle interrupted this with notions of human superiority over other living creatures (Zhang, 2006). When history becomes a social process (not natural or 'the way things are') and nature regarded as separate from social/cultural processes, then the dualism of culture/nature is born.

Wenxi Zhang (2006) builds on this, arguing that, "the separation of history and nature has become an existential tension between the modern and the ancient" (p. 636). By this he means that in ancient times nature and culture were not separated, and that the birthplace of nature as an idea began in ancient Greece (Zhang, 2006). Bridging the ancients and the moderns is the concept of history, which was based on the "metaphysics of non-history" (Zhang, 2006: 637).

The discussion of nature by modern Western philosophers has included concerns to do with the moral rights of non-human life forms and a holistic land ethic (e.g. Aldo Leopold), as well as the intrinsic versus extrinsic value placed on nature. The importance of the application of philosophical thought to the problem of nature is also stressed by Holmes Rolston (1999), who makes the case that human intervention in and management of nature is a problem that can only be addressed through "a metaphysics of nature and of human nature" (p. 143). Increasingly, Rolston (1999) argues, humans see themselves as "planetary managers", and yet many of those involved in this (such as economists) are not at all certain about "what they believe" (p. 143). This is a matter to be addressed by philosophy and ethics, and includes questions such as whether nature has 'intrinsic value'; whether through transforming nature we are also causing its demise; and what are the consequences of living in a post-natural and modified world (Rolston, 1999).

These themes have long provided philosophical gristle. But is Western academia up to the challenge? Yrjo Haila (2000) claims that the nature/culture dualism is entrenched in Western metaphysics and has led to a conceptual prison (p. 158). This, she argues, has a detrimental effect on environmental thought as it leads to the objectification of nature instead of a focus on the contexts within which nature and culture belong together.

Judith Alder (2006) also argues convincingly that our understanding of nature is limited within academia. She argues that most academic historians of environmentalism are locked into the "secular university- based intellectual culture" and fail to appreciate the diverse and discordant philosophies of humans and nature from ancient times (Alder, 2006). In particular she argues that by the fourth century, diverse schools of spiritual thought had constructed 'desert' or 'wilderness' as pure spaces that were a refuge from human settlement. According to Alder (2006), in the third century Origen (as Christianity's first major theologian) saw the 'desert' or 'wilderness' as a pure place where God is more familiar (Alder, 2006: 15).

The great divide: Nature and culture

The claim that nature and wilderness have an 'intrinsic' value (independent of their extrinsic value and related ideological constitution) is, as demonstrated in the above section, a philosophical claim often made by environmentalists. However, this claim is based on the ideological division between humans and nature, which is premised on troubling binaries. These include culture/natural; subject/object; man/woman; and mind/body dualisms (Merchant, 2005). These dualisms have been explored (especially in eco-feminist literature) for the insights into a misogynistic Western culture that drawing parallels can afford.

Haila explores the culture/ nature dualism in more detail. According to Haila (2000):

> Culture may be viewed as an agent that actively strives for domination over nature, or as a malicious tumor that tends to grow and exceed the limits set by nature. Nature may be regarded as a source of hardships and catastrophes that needs to be mastered by human rational action or, alternatively, as benign providence that offers advice. The common denominator of all these varieties is that culture and nature are opposite sides in a dualism. (Haila, 2000)

The separation of humans and nature is an anthropocentric ideological position and one that tends toward a posture of what Jim Mason calls *dominionism* over nature (Mason, 2006). According to Mason, dominionism is the ideological backbone of Western culture, and is the view that "human beings have a God-given power or right to use and control the living world for their exclusive benefit" (Mason, 2006: 180).

This attitude of superiority has been challenged by radical ecology. The theme of interconnectedness between humans and non-human nature is one that is frequently evoked in radical ecology literature (Argyrou, 2005: 54). Early arguments of this kind in the 1970s can be located in the work of Arne Naess, who called for a rejection of "man-in-environment image in favour of the relational, total-field image" (Naess, 1983: 343). Naess (1983) called this 'new' way of looking at non-human nature 'ecosophy', and argued that it held normative principles to guide human action. This implies a non-exploitative premise for human relationships with the non-human world, and recognition that all life forms demand equal respect and right to life.

Likewise, eco-feminists such as Vandana Shiva (2005) assert that the Earth is a community of all beings and that it should be regarded as a *commons* rather than a *global supermarket*. This use of metaphors to describe the modern complex relationship of humans with the Earth is echoed in the work of Val Plumwood (2002). Plumwood (2002) uses the metaphor of the *Titanic* to describe the Earth and our collective human journey. She stresses that the boat represents an "ecological world on which we are all passengers" (p. 2). Plumwood's argument is that humans need to value the non-human world and recognize their dependency on it (Plumwood, 2002: 3).

However, Plumwood argues that our journey as humans on Titanic Earth is stricken. We have, Plumwood writes, "received the iceberg warning" (Plumwood, 2002: 1). The Earth, like the *Titanic*, is on a course toward crisis. This is well documented and will only be briefly discussed here. Shiva (2005) identifies the main themes of concern regarding environmental degradation and exhaustion of resources. These include: a reduction in the Earth's biodiversity because of the reliance on industrial agriculture which favors monoculture agricultural crops; toxic pollution due to the use of chemicals in agricultural production; depletion of water and energy resources; desertification and global warming.

Earth's course toward the iceberg is a warning cry that has been uttered in environmental thought as early as 1864. Uncharacteristically for the times, George Perkins Marsh was mindful that the Earth may be reduced to "impoverished productiveness" (Marsh, 1864, cited in Hughes, 2006: 31). This focus on the Earth's productiveness underscores a utilitarian approach to non-human nature. Thus, while Marsh was concerned about the impact of environmental destruction on the Earth, it wasn't for its own sake but rather because of how the declining productivity would affect humans. Devall and Sessions call this a "narrowly utilitarian scientific/technological management" approach, and argue that it has dominated the conservation movement (Devall and Sesions, 1984: 293). The desire for

preservation of 'wilderness' has been distinguished from interests in managing non-human nature to conserve resources (Thompson, 1983).

Radical ecology, on the other hand, places emphasis on the value of human and non-human life for its own sake. This represents a shift from a worldview of nature as an object to be used (a utilitarian view), to one of nature as vital *and* sacred (Argyrou, 2005). According to Argyrou (2005), this shift in perception represents a key shift in ontological positioning in the West. Thus, radical ecology has presented a challenge to the assumption that nature and society are separate (Argyrou, 2005).

Radical ecology has a range of predecessors including eighteen century German Romanticism and its call for a recognition and idealization of nature as "pure and authentic" (Keith, 2011). This includes the work of Rousseau, who will be discussed in more detail later. At this point it is sufficient to say that he represented Romanticist resistance to the social ills of a rapidly developing urban culture in Western Europe. Keith (2011) describes this environment as one that:

> ...swelled with suffering and squalor... Satanic mills destroyed rivers, the commons of wetlands and forests fell to the highest bidder, and coal dust was so thick in London that the era could easily be deemed the Age of Tuberculosis. In Germany the Rhine and the Elbe were killed by dye works and other industrial processes" (Keith, 2011, p. 115).

Marxist thought has also challenged the divide between nature and humans and analyzed the ways 'nature' is ideologically constructed in capitalist society (Castree, 1995; Schmidt, 1971; Smith, 1984). Marx's materialist and dialectical philosophy of nature offers a means for understanding human relationships with nature in a deeper sense than merely the means for survival. Marx believed that, "the physical and mental life of man, of nature, are interdependent means simply that nature is interdependent with itself, for man is a part of nature" (Marx, cited in Bottomore, 1963: 127).

It is of interest that Marx and eco-Marxist theory has been critiqued by radical ecologists for its situatedness in Enlightenment thought itself. Critics have argued that Marx did not take account of the world's "natural limits" (Foster, 2000: 1). He has also been criticized for working within the rationalistic neo-Cartesian ideological framework, which deep ecologists see as anthropocentric and antithetical to the eco-centric worldview they champion.

Marxism is considered by post-structuralists to be a 'grand-narrative' of the Enlightenment eco-feminists such as Carolyn Merchant (2005), and critique Marxian theory for its human-centered orientation and endorsement of science and technology in the pursuit of human progress. In contrast, the eco-centric ethic is contrasted as regarding the natural world (including both animate and inanimate aspects of the environment) as having 'intrinsic value'.

However, Biro (2005) cautions that this reading of Marx leaves out important points. The historicization of ideology in Marx means that 'progress' and 'mastery over nature' need to seen in relation to particular social relations of production. For Biro it is debatable that "Marx's view of human fulfilment under socialism is necessarily predicated on 'nature domination"' (Biro, 2005: 91). Marx also held a relational view of nature. He argued that humanization of nature occurs when man's consciousness has evolved to create objects from nature (Chandel, 1979: 98).

In transforming nature man transforms himself, and thus nature and man are one. David Pepper expresses this sentiment well:

> Through changing nature and making things, we have changed ourselves into creatures who can appreciate the beauty of what we create; buildings, machines, art. We have developed our subjective senses – our feelings and emotions . . . included in all this are our intellectual senses. As we transform nature we get to know nature's laws in order to transform nature more effectively and usefully. As this happens we develop our own intelligence. (Pepper, 1993)

This process is linked to Marx's concept of 'species being'. According to Marx, humans produce from nature independently of physical needs. That is, work is the process through which men produce according to the "laws of beauty" and "he sees his reflection in a world which he has constructed" (Marx, cited in Bottomore, 1963: 128).

However, according to Marx, under capitalism this phenomenon leads to the objectification of humans and the loss of themselves as human subjects in the world. Humans have become commodified through their labor. The product of the worker's labor is alienated from him because it is only a means to ensure his physical survival (wage labor) (Marx, cited in Bottomore, 1963). Marx writes that, "alienated takes away the object of production from man . . . his inorganic body, nature is taken from him" (Bottomore, 1963: 128).

Philosophical illusions

Part of what Eric Fromm calls the 'great illusion' of the industrial age has been the quest for knowledge and domination of nature (Fromm, 2007). This indicates the need for a critical and timely re-examination of what Fromm calls the two modes of existence *having* and *being* (Fromm, 2007). Fromm (2005) discusses the 'second industrial revolution' as a stage where humans become completely 'alienated' from themselves:

> He is programmed by the principles of maximum consumption, and minimal friction. He attempts to relieve his boredom by all kinds of consumption including drugs and sex. This, and possibilities of neurologically and physiologically produced changes in his feelings, in addition to the manipulation of his thought processes by suggestive methods, will be used to provide man's smooth functioning as a part of the megamachine. (Fromm, 2005: 51)

This "change in human existence", from human to machine, is a process of alienation from nature (Fromm, 2005: 52).

It is, as Rousseau would contend, a corrupted existence. Rousseau describes the state of 'natural man' to be one of self-respect and compassion (Jack, 1978). Rousseau argues that the natural human passion for pity is a "natural repugnance at seeing any other sensible being, and particularly any of our own species, suffer pain or death" (Rousseau, 1979). The horror of the dual picture painted by both Fromm and Rousseau should give pause for thought. If humans increasingly become alienated from their existence as thinking, compassionate and active beings, then we are left with passionless 'machine-bodies', fulfilling the dictates of capital. Donna Haraway (1991) echoes this concern. She argues that the division between humanity and machines is becoming increasingly obscured. Furthermore, she writes that, "Our machines are disturbingly lively, and we ourselves frighteningly inert" (Haraway, 1991: 152).

The oppression of humans through capitalist processes is linked to the exploitation of nature. The two are intricately connected, and modern science is staking its claim in what may well be the last vestige of human resistance: "the invention and reinvention of nature [is] perhaps the most central arena of hope, oppression and contestation for the inhabitants of planet earth in our times" according to Haraway (1991: 1).

People living in advanced Western capitalist societies become subjects of its horrific philosophical trajectory, internalizing and normalizing its brutal assumptions. Take, for example, the notion of 'perfectionism' coined by Paola Cavalieri (Cavalieri, 2001). 'Perfectionism' refers to the thinking that ascribes higher status to certain characteristics in humans (Cavalieri, 2001). Cavalieri argues that this philosophic tradition is over 2000 years old and has justified using:

> ... nonhuman animals as a means to our ends. We kill them for food, we use them in our work and entertainment, we employ them as tools in research of all kinds, and it is rare that we pause to ask ourselves whether our behaviour is morally justifiable. (Cavalieri, 2001: 3)

This attitude toward animals is often tempered with a concern to militate against unnecessary suffering, but Cavalieri suggests that this is a negligible constraint when held up against the broad definition of human needs. There are also deep contradictions within this paradigm. While companion animals may be coddled and protected by law against mistreatment, many farm animals are routinely denied the most basic of their physical and emotional needs (Grandin, 2009).

The key question becomes how do particular ideologies about nature become accepted and seen as normal? If we are to accept Rousseau's proposition that the human's primal and original nature encapsulated the right impulses, including the "innate repugnance at seeing a fellow-creature suffer", then it seems we are a long way from our primal selves (Rousseau, 1979). Humans have become alienated from their instincts of love of self and love of other (Sahakian and Sahakian, 1974).

Alienation from nature: The importance of the work of Rousseau and Marx

Alienation from nature is a significant concept with educational implications. The work of Jean-Jacques Rousseau (1712 1778) illustrates a Romantic eighteenth century view of nature as good and humans' natural state as right. For those thinkers in the modernist era such as Jean-Jacques Rousseau and Karl Marx, the significance of nature to their philosophy of 'man' was paramount.

The importance of nature to human existence is an insight developed by the Romantics. It is based on an ideology of nature as an integral element of being human. Rousseau (1979) argued that the natural state was good and argued for a unity between humans and nature. For Rousseau humans were naturally free, and he argued vehemently against their alienated existence under civilization. Civilization was regarded by Rousseau as the root of all inequality and evil.

Rousseau reacted against the 'possessive individualism' of bourgeois society and did not regard economic growth as desirable for human development (Biro, 2005). Furthermore, he argued that bourgeois society was corrupt and advocated that humans should live according to nature. To this end he believed in an education for children that allowed them to discover their true self, including the basic needs of the human mind and body.

For Rousseau then, there is a universal human condition which humans became alienated from through social processes or convention. He argued that all humans are born equal and innocent, but through social processes humans become "mannered but manipulative role player[s]". For Rousseau, the human is born with a natural love of self (amour de soi or amour propre) (Rousseau, 1979: 92). If self-love is allowed to develop through immersion in the natural world it will continue to radiate toward family, then community and country, and finally God (Rousseau, 1979). Nature is thus seen as the locus of all reality and should form the basis of education.

Emile is a fictitious male character in Rousseau's didactic novel. He served to demonstrate Rousseau's educational proposition that the child needs to interact with non-human nature (wild; land) independently from human theories and bodies of knowledge that construct it in terms of "inert highly verbal information remote from nature" (Gutek,1998: 72). Rousseau advised parents to "[o]bserve nature and follow the path it maps out for you" (Rousseau, 1979).

Marx's discussion of alienation has a philosophical context (Bottomore, 1963). Like Rousseau, Marx also held that ontologically, 'Man' is a 'free, conscious being', but through exploitative relations of production becomes alienated from his *Being*. He becomes alienated from his being as a human and from human nature itself. According to Fromm (2004):

> Marx's aim was that of the spiritual emancipation of man, of his liberation from the chains of economic determination, of restituting him in his human wholeness, of enabling him to find unity and harmony with his fellow man and with nature. (p. 2)

Burkett argues that Marx's writings provide a deeper understanding of how capitalism, as a historically contingent mode of production, socially constructs the concept of nature (Burkett, 1999). "Marx's treatment of natural conditions possesses an inner logic, coherence and analytical power that have not yet been recognised, even in the ecological Marxist (or "eco-Marxist") literature" (Burkett, 1999: 1).

The following sections will explore ideologies of nature and attempt to locate them historically. These sections demonstrate and the increasing dominance of misogynistic and destructive ideologies of nature in modern times.

Animism and organic ideologies of the 'nurturing mother'

Indigenous ideologies of nature as 'Mother Earth', or 'Earth Worship' are sometimes referred to in academic literature as 'goddess cultures'. They have given voice to eco-feminist scholarship and provide a platform to argue against patriarchal exploitation of nature and women. Drawing links between the exploitation of nature and women by man, eco-feminists evoke the Earth Mother as the basis for a new ethic and unity with nature (Collard and Contrucci, 1988).

Collard and Contrucci's research suggests that "European-based societies receive their notion of Mother Earth from pre-Hellenic Greece influenced by Crete, Ancient Anatolia and the Near East, as well as the powerful Celtic tradition which extends in a broad sweep from northern Ireland to Spain" (Collard and Contrucci, 1988: 8). Originating in Mesopotamia during the Paleolithic Age (25,000 15,000 BC) and spreading throughout Europe, Africa, Asia and the Near and Middle East, this female-centric outlook has persisted until AD 500 and is still evident amongst some indigenous communities (Collard and Contrucci, 1988).

Female-centered positions are an important counter to the dominance of what eco-feminists consider misogynistic, patriarchal and destructive ideologies toward nature.

There is a tendency amongst scholars to reduce the worldviews of ancient peoples to a 'first stage' in the historical development of civilization. For example, Foss (2009) writes:

> [i]n this first stage, nature is seen as both a friend and an adversary. The first imperative of all organisms is the struggle to survive. The beauty of nature is recognised, especially in terms of the abundance of game or the fertility of the ground, but so is the destructiveness and fearsomeness on nature. Nature is both loved and hated. It is in this first stage that agriculture, civilisation and industrialisation are eventually attained. (Foss, 2009: 17).

Such a view, while recognizing human interaction with the objective material conditions of existence as important in the process of historical development, negates to perceive the complexity of this process. Human 'progress', ideologies and struggle are seen in terms of interaction with the non-human world and the challenges this poses. This binary opposition of "[n]ature giveth, and nature also taketh away" (Foss, 2009: 15), refuses to regard the non-human world in any other terms than something 'outside' of humans that we struggle to 'liberate' ourselves from. Thus ideologies are a mere reflection of these struggles rather than *embedded* in the real material process of existence. It sees the development of 'tools', 'technology' and 'civilization' in progressive terms (Foss, 2009).

Even more worrying than the simplification of ancient worldviews of Mother Earth is the modern interpretation of it in patriarchal ways. 'Mother Earth' represented in these terms loses its original meaning. As Collard and Contrucci (1988: 4) argue, current reference to 'Mother Nature':

> ... retains a vague connotation of uncontrollably punishing weather ... It stirs up fantasies of conquest in the language of hunters who claim to 'love' nature even as they kill her animals. It obsesses all manner of scientists who 'love' her to death in an attempt to 'penetrate' and understand all her 'secrets'.

'Animism' is another term referred to by scholars, particularly anthropologists, when describing ancient ideologies of nature. It is a term coined by E.B. Tyler in his anthropological work *Primitive Culture* (Bird-David, 1999). Characteristic of animism is a reverence for animals and nature. Merchant (2005) contends that in ancient times and into the Renaissance, there was a world view of the cosmos as alive. Aldo Leopold and James Lovelock are recent exponents of this idea, and convergence can also be found in indigenous and certain aspects of Asian thought (Kinsley, 1995). However, in this section I will explore 'animism' of the ancient worlds.

'Animism' is an 'existential' statement of a people's experience. According to Carolyn Merchant, as late as 1500 CE, Europeans, and other people, lived in close daily interaction with the non-human world (Merchant, 2005). The individual was subordinated to the communal interest in all spheres of life, including the "family, community and state" (Merchant, 2005: 76). Research into Earth Mother beliefs reveals a 'matriarchal' figure who is giving and nurturing and who embraces earth spirits in her being. She is alive; 'vital life' existed in the cosmos, even in stones (Merchant, 2005). As Gaard (1998: 23) says, "[n]ature is perceived not as a force to be dominated but rather as a living being from which all life came and to which offerings and devotion were given". Nature within this ideology is sacred and to be revered.

An important point about ancient ideologies of nature is that they have a 'relational epistemology' (Bird-David, 1999). Merchant (2005) argues that this 'organismic theory' of Mother Earth as a living entity had a normative effect on people's behaviors. Merchant (2005: 78) writes:

> One does not readily slay a mother, dig into her entrails for gold or mutilate her body ... As long as the earth was considered to be alive and sensitive it could be considered a breach of human ethical behaviour to carry out destructive acts against it. For most traditional cultures, minerals and metals ripened in the Uterus of the Earth Mother, mines were compared to her vagina.

The nurturing Earth is a metaphor prevalent in ancient worlds and amongst traditional cultures. It continued into the Renaissance period but over this time a shift began to occur that split the inanimate and the animate, divided the human and non-human into social and natural categories. Merchant has argued that the removal of the divine from nature resulted in her death (Merchant, 2005). In the next section I will explore how shifts in Christian thought led to the idea of dominion over nature.

The Fall and the Flood: Christian ideologies of nature

The Judeo-Christian orientation, and in particular the Genesis creation myth, is one source of the benevolent nature ideology. The 'biblical garden' of God's creation is lavishly described by scholars as a place of harmony and contentment as animals and humans co-existed perfectly (Delumeau, 1995). In Genesis 2.8 it states that:

> And the Lord God planted a garden in Eden, in the east, and there he put the man whom he had formed. And out of the ground the Lord God made to spring up every tree that is pleasant to the sight and good for food. The tree of life was in the midst of the garden and the tree of the knowledge of good and evil. (Genesis 2:8, English Standard Version)

In this saga non-human nature takes center stage as a sacred and pre-human construct. The Garden of Eden myth is a narrative of paradise found and lost, of both freedom and domination and of innocence and sin (Kurtz, 1979). After Adam and Eve's fabled fall from innocence (after partaking of the fruit of the Tree of Knowledge of Good and Evil), and subsequent banishment, the Garden of Eden is said to be guarded by fiery swords to prevent humans re-entering. Genesis recalls God's punishment: "He drove out the man, and at the east of the garden of Eden he placed the cherubim and a flaming sword that turned every way to guard the way to the tree of life" (Genesis 3:24, English Standard Version).

Will humans ever be able to dodge the sword and re-enter the terrestrial paradise? The fall marked a new state of humans in nature. The story of the Fall recalls that Eve, who was fashioned last of all (after Adam), picked a forbidden fruit from the Tree of the Knowledge of Good and Evil and God banished her and Adam from the Garden of Eden. God admonished Adam and told him:

> Cursed is the ground because of you; through painful toil you will eat food from it all the days of your life. It will produce thorns and thistles for you and you will eat the plants of the field. By the sweat of your brow you will eat your food until you return to the ground, since from it you were taken; for dust you are and to dust you will return. (Genesis 3:17-19, English Standard Version)

Henceforth humans were mortal beings of the Earth, yet not one with nature but subjected to a wild and untamed landscape with which they must endlessly toil to survive.

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An oppressive and tyrannical view of human relationship with animals begins to emerge. For example, in Genesis 9 after the flood the Earth is a place of domination and fear for animals:

> The fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea. Into your hand are they delivered. Every moving thing that lives shall be food for you. And as I gave you the green plants, I give you everything. (Genesis 9:2, English Standard Version)

The Judeo-Christian tradition has had a strong influence on Western thought. Sandie Suchet (2002: 142) writes that:

> [s]tatic, naturalised boundaries between what is seen as 'culture' and 'nature', 'human' and 'animal' are fundamental in Judeo-Christian traditions about the creation process. Man's ability to name separates him from, and makes him more powerful than 'living creatures' (and women).

During the Renaissance period there was a shift in ideologies of nature, although the organic view of nature as alive was still present. During the Renaissance the view of humans as central to the world and as the master of nature was established. As Kinsley (1995) notes:

> ... in almost all Christian thought prior to the Renaissance ... the superiority of human beings over all other creatures tended to be tempered with an emphasis upon the creatureliness of humans and their utter dependence upon God. In the Renaissance, an increasingly elevated view of human beings came to be expressed ... [I]t was human destiny and nature to master the creation. (Kinsley, 1995: 126)

This form of atheism establishes the existence of Man as Ego and sole divinity and also meant the annulment of God. This divestment of Man from religion is the basis of Humanism. The dominant view of nature encapsulated in these writings is that God created the physical world but it is not divine (Kinsley, 1995). According to Merchant (2005: 31)

> [b]eginning in the seventeenth century and proceeding to the present, New World colonists have undertaken a massive effort to reinvent the whole earth in the image of the Garden of Eden. Aided by the Christian doctrine of redemption and the inventions of science, technology and capitalism ... the long term goal of the recovery project has been to turn the earth itself into a vast cultivated garden.

Transformation of the Earth into a managed cultivated garden brings the concept of wilderness into sharp relief. The humanization of nature has resulted in what many post-modernists have referred to as the death of nature (Rolston, 1999).

Rationalist ideologies of nature

The breakup of feudal states was followed by the rise of capitalism from the sixteenth century onwards. This new economy was based on increasing economic trade, the development of technology, the establishment of markets in inorganic metals, the use of non-renewable energies and the emergence of a working class of wage-earners. Ideologies that developed in response to this include logical positivism and Cartesian objectivism hallmarks of the Enlightenment.

The Enlightenment period during the seventeenth and eighteenth century emphasized the individual, free will and the development of reason. Logical positivism has, since the Enlightenment of the eighteenth century, dominated Western thought. It privileges truth-statements and verifiable facts about the natural, economic and social world (Merchant, 1995).

Thus a central challenge to the organic view of nature described earlier was also made by the developing fields of science, physics and mathematics. During the Renaissance period scholars that developed the later modernist and Enlightenment views of nature include Francis Bacon, René Descartes and Isaac Newton (Kinsley, 1995: 127). Francis Bacon (1561 1626) was an early scientist. He claimed that the aim of the scientist is to torture nature's secrets from her. Nature was to be "hounded in her wanderings", "put into constraint", "bound into service" and made into a "slave" (Capra, 1982). René Descartes (1596 1650) built on the Aristotelian dichotomy of subject and object. In Cartesian logic 'nature' is seen as passive, as an object that is separate from man, just as the body is separate from the mind. Isaac Newton (1642 1727) argued that nature should be described by rationally understandable laws. The stress was on measurement and objectivity. Changing ideologies of nature reflected a shift from nature as alive and organic to nature as made of matter, nature as machine and nature as passive and inert.

The Cartesian rationalist position dividing humans and nature is invoked by Plumwood (2002) to explain anthropocentric worldviews that advocate minimal departure from current status quo. The rationalist economic regime, supported by neo-Cartesian views, aims to "extract the most from the other who is the resource" (Plumwood, 2002: 159). Her argument that current rationalistic neo-Cartesian ideological dominance has led to 'false' understandings of the location of humanity within nature (separate from nature) resonates with Selby's insights into Western worldviews. According to Selby (2002), mainstream Western thinking constitutes a worldview with regards to the environment that is "underpinned by notions of separation, otherness and domination." He claims that these understandings have been shaped by seventeenth and eighteenth century scientific and philosophical ideologies (Selby, 2002: 78). The philosophical underpinnings Selby refers to are based on modernist ideals that celebrate rationality (or transcendent reason) and a belief in the scientific method. They constitute central dominant tenets of Western culture and are central to humanist liberalism today (Selby, 2002).

The seventeenth and eighteenth century was a time that great significance was placed on naming, classifying and ordering the natural world. The *Endeavour* voyage of 1769, captained by James Cook, was a botanical exploration of great significance for the developing fields of taxonomy and botany. The botanical party on board was led by Joseph Banks (1743 1820) and collected flora and fauna from the South Seas and Australia areas that were previously unchartered by the Western world (Allen, 1990). David E. Allen (1990) remarks that the results were outstanding:

> For also toiling on the conveyor-belts are the plant and animal taxonomists and the connoisseurs of natural history art. From the Endeavour voyage alone over 30,000 specimens survived to return with Banks, among them perhaps as many as 1400 plants new to science, extending the known flora of the globe (as enumerated by Linnaeus in the Species Plantarum) by no less than a quarter.

Bottled flora and fauna of such voyages are now stored in draws and shelves of museums; dead, pickled and inert, awaiting the further objectification by the scientist.

One of the most disturbing tenets of the rationalist ideology is the view that non-human nature and animals are inferior to humans (Plumwood, 2002). Plumwood (2002) argues that this ideology relies on "the construction of the 'other' through binary oppositions such as mind/body and human/animal." The forms this takes under modernity include the use of "animals- as-living-tool" in scientific experiments (Collard and Contrucci, 1988). Such violence is not only legitimated but celebrated through publication of the ensuing research material and funding (Collard and Contrucci, 1988).The commodification and objectification of animals and non-human nature as 'other' takes its extreme form in the patenting of non-human nature forms including plants and animals.

Western capitalist ideologies of nature

As noted earlier, the societies that existed pre-capitalism did not differentiate between nature and humans. But under capitalism nature and society became antagonistic and fragmented forces (Pepper, 1993: 110). Within capitalism non-human nature becomes objectified in the form of a commodity (Pepper, 1993: 108). The commodification of non-human nature is well developed in Marx's work. According to Marx, capitalist production can be distinguished by the production of products as commodities. As "Being a commodity is the dominant and determining characteristics of its products" (Marx, 1894: 1178).

The commodification of products has included 'natural resources', further problematizing the deep-green call for 'intrinsic value' in nature. Using the concept of 'use value', Marx (1867) builds an understanding of the productive processes of capitalism. A 'use value' becomes a commodity and acquires 'exchange value' through a social process (Marx, 1867). According to Marx, direct relation between objects and man reveals their use value. But the exchange value is independent of their use value. Thus, "so far no chemist has ever discovered exchange value either in a pearl or a diamond" (Marx, 1867). The commodification of non-human nature in this way is supported by utilitarian views of nature as having extrinsic value.

Capitalist ideologies that construct land as having a 'use value' have also been used to support notions of progress and development. In particular, Plumwood (2002) explains how European colonization of indigenous peoples and their lands was justified by ideologies of superiority. Indigenous peoples were regarded as 'primitive' and closer to animals and children. Their lands were constructed as 'empty' and 'unused'. Furthermore, through naming what were considered 'discoveries', early Western botanists divest the 'thing named' of its history and meaning (Tuhiwai Smith, 1999).

Ideologies of dominance and control originating from Western Imperialism have in some cases been softened by the language of management. Suchet argues that notions of conservation management and wildlife management are predicated on notions of control and domination (Suchet, 2002). Suchet uses the example of National Parks that are often:

> ...presented as exemplars of nature in all its glory, unspoilt and pristine. Rendered invisible in this discourse are management mechanisms such as roads, fences, constructed water points, wildlife counts, reintroduced animals, culling quota, feral animal baits and tourist infrastructure, as well as experiences of interaction and dispossession. (Suchet, 2002: 148)

The notion of 'ecosystem services' provides a compelling illustration of the articulation of 'conservation' discourses with those of the market. 'Ecosystem services' is a metaphor for

humanity's dependence on the natural world (Redford and Adams, 2003). The utilitarian values placed on 'ecosystem services' by mainstream sustainability politics underscores an ideological commitment to an anthropocentric worldview. For example, the Millennium Ecosystem Assessment Synthesis Report defines ecosystem services as: "the benefits people obtain from ecosystems. These include provisioning, regulating, and cultural services that directly affect people" (Millennium Ecosystem Assessment, 2005).

Discussion of 'markets' in ecosystem services is now commonplace. Ecosystems have become subject to economic mandates such as pricing or valuation. For example, Kent Redford and William Adams (2009) (both wildlife conservationists) argue that, "[t]here will be winners and losers in markets for ecosystem services... As people annex ecosystems and adapt them to maximise revenue flows, collateral damage to biodiversity will be unnoticed or discounted" (p.786). Redford and Adams (2009) rightly point to the limitations of regarding nature in solely market economic terms only: the loss of biodiversity being regarded as collateral damage; the growth of "nature manipulation" industries (carbon capture through artificial trees; genetic modification; biomimicry). They argue that although framing markets in terms of ecosystem services provides a stimulus for conservation, it fails to value nature in any other terms but its usefulness to humans.

Education

From the above discussion several educational problems emerge. For example, does the Western education system (dominated as it is with upholding rational and scientific thought), function to dehumanize and alienate students further from nature and from themselves as human beings in the world? In this regard, appreciating the critical role of the school in Western society in transmitting and hence perpetuating dominant ideological constructs is important. John Ahier (1974) argues that ideologies function to '"maintain the status quo' by inhibiting action, by giving a false picture, or by presenting as objective an implicit value judgement" (p. 214). Thus, the school structure can be seen to reflect and reinforce the ideologies and implicit values of wider society.

Rousseau and other naturalists thought that the answer lay in a form of naturalist education as nature is the "basis of ethical relationships", and expresses a beneficent and universal order (Gutek, 1988: 71). Certainly some of the principles underlying Rousseau's vision of education such as the fostering of students' natural abilities and curiosity should be upheld. Rousseau argues that the curriculum 'comes' to the child through immersion in non-human nature. This may be worth revisiting as a critical space to re-consider what constitutes education and how we can counter the domesticating features of the current Western school system.

Finally, the cultivation of a 'geocentric' or 'solar ethics' in education supports a relational view of the world (Peters and Hung, 2009). Michael Peters and Ruyu Hung argue that this could be the basis for a new paradigm in education, in that it would constitute a move away from an anthropocentric posture toward one based on systemism and ethics. They argue that, "the primary significance of solar ethics is to call for an imagination of taking the solar system as an ethical frame of mind which means the solar system may inspire us to reconceive human moral responsibility, decision and action" (p. 327).

Conclusion

And so we return to Rousseau and his proposition that Emile should be educated in union with nature. Rousseau's philosophy of natural man underscores his position on the human existential problem. The true meaning of human existence can be found in nature.

It is now possible to tentatively formulate a response to the question: is Emile in the Garden of Eden? The Garden of Eden, as we have seen, is guarded by angels with fiery swords. The only way Rousseau is going to break through that border is through Emile's human capacity to love and reason. Fromm (2005) has shown how this is a solution to gaining unity with nature. He writes that within these strands of thought, which form the essence of the Western tradition, "[m]an's task is to develop his humanity, and in the development of this humanity he will find a new harmony and hence the only way in which he can solve the problem of being born" (p. 76). The harmony Fromm speaks of is with "himself, with his fellow men and even with nature" (p. 76).

And what of the Earth as the ship the *Titanic*, discussed earlier in this paper (Plumwood, 2002)? Plumwood advocates democratic cultural change to help us "acknowledge our ecological imbeddedness" before we go down with the ship (Plumwood, 2002: 3). Ecological awareness must surely include a developing compassion and awareness of a commonality in sentience between humans and non-human animals. Mark Bekoff (2007) claims that animals possess, "moral sensibilities and these are the evolutionary precursors to our own moral behavior". (p. 83). Yet when our moral behaviour and social character orientation is shaped by what Fromm (2007) calls the 'having mode', it would appear the compassion is being jettisoned in favor of selfishness. This will have dire consequences for Plumwoods (2002) plea for democratic cultural change and awareness of our ecological embededness.

So entrenched is the ideological framework that calls for human domination, mastery, management and control of all that is 'not human', that many have lost the empathy Rousseau saw as essential to *being*. To *be* in this sense is to justify cruelty and destruction in the name of progress, technology and science. Using animals for experiments is one example of this. Collard and Contrucci (1988) describe animal experimentation as mad and sadistic. It's not just about animal rights. It's also about what it means to be human in the world. To be human is to experience a world where humans are not alienated from themselves and from nature and as I have attempted to show, the two are deeply connected.

Erich Fromm (2005) argues that a geocentric positioning of humans is now possible. He writes, "a picture of Earth has been made available from distant space, from the lunar desert, and the sheer isolation of the Earth has become plain" (p. x). Peters and Hung (2009) extend this line of thought to 'solar ethics', arguing, like Fromm, that humans are part of a bigger solar system, dependent on forces such as the sun for life. Solar systemism can lead to a view of humans and nature as existing on the same continuum, rather than separate. This view sees the sun as the center of all life on Earth. Peters and Hung write, "[s]olar ethics is a frame that will help to re-position humans within nature and lead to a more sustainable world view" (p. 321). This line of thought may hold some promising resistance against dominant ideologies that situate humans and the non-human world in divergent and often antagonistic ways.

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Article Two:

On science, ecology and environmentalism

In this article, I focus on the way in which ecological science has been drawn on by environmentalists and 'third world' anti-globalization radicals who argued for sustainable development (SD). Key ideas such as 'carrying capacity', 'limits to growth' and 'finite resources' were generated by these early environmental authors to convey that economic growth and 'first world' development were putting a strain on the earth. This article traces the ideological disruptions and continuities that have muted the voices of these early environmental authors and subordinated them to the neoliberal agenda for expanding global markets. It is argued that the current sustainable development discourse (SDD) based on the neoliberal agenda has gained hegemonic acceptance in the West.

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On Science, Ecology and Environmentalism

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ABSTRACT Using ecological science as a backdrop for this discussion, the author applies Michel Foucault's historical genealogical strategy to an analysis of the processes through which sustainable development (SD) gained hegemonic acceptance in the West. She analyses some of the ideological mutations that have seen SD emerge from an environmentalist ideology based on ecological science to that of a mainstream market-oriented ideology for global economic development. This involves canvassing the voices of early environmental authors and ecologists, whose ideas such as 'carrying capacity', 'limits to growth' and 'finite resources' have been co-opted by the 'sustainable development' movement. It is argued that a discursive political and philosophical conservatism has muted the potential for a truly radical ecological approach.

This article will treat the science of ecology as a touchstone from which the discourses of environmental crisis and environmentalism gained momentum during the 1960s and 1970s in the West. Such an analysis provides an opening to unravel a genealogical history of environmental thought. For this article I am particularly interested in environmental and sustainability discourses as they have emerged from the science of ecology.

Environmental philosophy has, since the 1960s and 1970s in particular, drawn on the science of ecology to highlight the dependence of humanity on ecological systems as critical for future survival. The principles of ecological science are worth briefly sketching at the outset. Merchant sums these up nicely:

> The science of ecology looks at nonhuman nature, studying the numerous, complex interactions among its abiotic components (air, water, soils, atoms and molecules) and its biotic components (plants, animals, bacteria and fungi). (Merchant, 2005, pp. 7-8)

Broadly speaking, environmentalisms take the principles of interaction, relationships and systems from ecological science to situate humans within the nonhuman world, stressing their dependence on the earth.

Environmentalist philosophy offers a critique of western assumptions that view man's relationship to nature as separate from nature. Environmentalists point to human dependence on and connectedness with nature. However, it is important to note that environmentalism is not a singular philosophy, but rather embodies a number of discourses that support the political aim of protection of the environment. There is a range of positions relating to this, from 'shallow green' managerial views to a 'deep green' commitment to non-interference with the non-human world (Hay, 2002).

For those of light green persuasion, managing 'natural resources' and conservation measures are important premises for policy making to mitigate against the impact of humans on the earth. For those on the dark green or 'deep ecology' side, however, this view does not go far enough because it depicts humans as 'outside' of nature, and as such is critiqued as essentially 'homocentric'. David Suzuki epitomises this dark green position, saying that '[t]here is no

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environment "out there" that is separate from us. We can't manage our impact on the earth if we are the surroundings' (Suzuki, 2008).

As an environmentalism, 'deep ecology' seeks to motivate individuals through adherence to normative underpinnings that see all life on earth as interdependent and as having inherent value. In 1984 Arne Naess developed a set of philosophical premises underpinning deep green environmentalism as a platform from which to base policy development (Hay, 2002) These include an ecocentric perspective, whereby human and non-human life are of equal value and have an 'inherent worth' that is 'independent of the usefulness of the non-human world for human purposes' (Naess, 2003).

It is not within the scope of this article to detail all the genealogical influences of environmentalism, but it is worth noting that as well as relying on the science of ecology to support its claims, it has it has drawn on a number of ideas. These include those of the knowledge systems and spiritualities of indigenous peoples, phenomenological thought such as Heidigger's dwelling-in-place, eastern religions such as Buddhism and the Tao, western physics and new physics, ecology and certain Christian traditions (Hay, 2002).

Science is an important genealogical influence to focus on as it operates as what Foucault terms a 'truth model' (Foucault, 1994a) This means that environmentalist discourses do not 'stand alone'. They gain credibility – come to be seen as true or false - in relation to science as a 'truth model'. This has real material consequences as in the prioritising of economic, social and environmental policy in line with scientific worldviews. As Taylor and Buttel (1992) have shown, 'science has a central role in shaping what count as environmental problems' (p. 405).

This article stresses the 'legitimation' function of scientific research in environmental and sustainability politics. The discourse of 'crisis' central to these movements is legitimated by the assumed truth and neutrality of science. Further, it motivates political action through what Harvey calls 'the politics of fear' (Harvey, 1974, p. 241). The received conventional assumption that science is 'objective' and 'neutral' has been challenged by scholars such as David Harvey (1974). According to Harvey (1974), this is because 'scientific enquiry takes place in a social setting, expresses social ideas, and conveys social meanings' (p. 215).

This article will tease out the underpinning economic imperatives and value systems in environmentalist discourse, including sustainability. The neoliberalising of nature evident in sustainability discourse indicates a hegemonic and constraining worldview held by those using it. Conservation of ecosystem 'services' and the 'natural resource base' are presented in much sustainability policy literature as serving the needs of development and quality of life. In relying on the science of ecology, environmentalism has also inherited some of its unstated positivist assumptions. These themes will be explored in this article in relation to key underpinning ideologies.

Deeper questions need to be asked in the quest for a more robust and transparent philosophical rationale for environmental action. It is my contention that important questions about the relationship between humanity and nature become sidelined in the face of a political furore over whether the environment really is at the 'tipping point' or not.

Method

The following discussion attempts to employ Foucault's genealogical analytical strategy. Writing history through Foucault's genealogy method may best be described as focusing on what it is *not*. It is not a description of events that attributes causal relations between social conditions and ideas (Foucault, 1994a, p. 283). As such, this article does not trace the development of environmentalism as simply resulting from an awareness of the impact of humans on the biosphere.

Social conditions and environmental destruction are of course important in tracing the genealogy of an environmental and sustainability discourse – but not in the sense that they can be construed as *explaining* a particular progressive historical trajectory of these ideas. For Foucault, worldviews and social practices are not causative, but rather are constitutive of the relations within which particular discourses play out. As Merchant explains, a positivist, mechanistic and instrumental worldview of nature developed 'simultaneously with and in support of early capitalism' (Merchant, 2005, p. 11). In this sense, ideas are power in that they justify particular

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modes of production. The *aim* with Foucault's genealogical analysis is to 'query the discourses and practices of the present by referring them back to the hegemonic conditions under which they have been established' (Andersen, 2003, p. 20).

Capitalism is now the dominant global economic system, and for it to expand and function optimally, ideologies must support it. Modern worldviews arose out of the work of sixteenth-century scientists breaking from the traditions of ancient science. An example of this can be found in the works of Francis Bacon (1571-1626), who offered a critique of ancient science which he claimed 'touched nature only "by the fingertips"' (Pesic, 1999, p. 82). Following a line of thought that had been developing in the preceding century, Bacon believed that nature needed to be subject to 'penetrating interrogation' in order to reveal its secrets to benefit humankind (Pesic, 1999, p. 93; Merchant, 2005, p. 45). This has formed the basis of modern scientific experimentation, technological development and domination of nature for the benefit of humans. It stands in direct contrast to earlier worldviews of the earth as 'a nurturing mother with respiratory, circulatory, reproductive, and elimination systems' (Merchant, 2005, p. 41). In the scientific worldview, earth is 'dead and inert, manipulable from outside and exploitable for profits' (Merchant, 2005, p. 41).

The concept of discourse as it has been developed by Foucault is useful in interpreting the way in which meaning and truth are formed through political structures (Foucault, 1994a, p. 15). Discourses are 'models of truth', and they circulate in society. According to Foucault (1994a, p. 15), they operate in the 'political domain' and in 'the domain of everyday behaviour', and also in the 'realm of science'. For Foucault (1994b), truth becomes a 'regime', and thus constitutive of the power structures in society. The production of truth in modern capitalist societies is focused on science and the institutions that produce and disseminate it - that is, the 'university, army, writing, media' (Foucault, 1994b, p. 131). Foucault also talks about 'ideological struggle' in this process of production and dissemination (Foucault, 1994b, p. 131). This article will illustrate some of these struggles in the arena of science, education and environmentalism.

Fairclough (1992, p. 8) likewise argues that language performs many functions that are linked to power. He categorises one of these functions as '"ideational" ... its function in representing and signifying the world and our experience' (Fairclough, 1992, p. 8). Through this function, the embedded values and rationalities of a particular discourse become part of our consciousness. They construct our selfhood and 'colonize us - gifting us with our existence and shaping our desires, our beliefs in what is right – the things we are prepared to die for' (Davies, 2005, p. 2). Merchant argues that the scientific and mechanistic worldview of nature has 'permeated and reconstructed human consciousness so totally that today we scarcely question its validity' (2005, p. 47).

Fairclough notes that 'a particular set of discourse practices and conventions may achieve a high degree of *naturalisation* – they are seen to be "there" in a common sense way, rather than socially put there' (Fairclough, 1992, p. 9, original emphasis). Discourse analysis helps us to understand the way that dominant 'models of truth' such as science are not 'neutral'. Rather, discourse must be seen in a relational sense – that is, it will have a relationship with 'dominant or dominated groups' in society (either ideologically supporting their struggles or not) (Fairclough, 1992, p. 9).

Currently the dominant language of the state in the West is that of the neoliberal government (Davies, 2005, p. 6). Giroux defines neoliberalism as a 'virulent and brutal form of market capitalism' (Giroux, 2005, p. 2). This article will explore some of the ways in which the dominant neoliberal discourse has 'colonised' environmentalist thought and action, subsuming it under the project of 'sustainable development'. It will also explore the various discursive struggles science has engaged with in the ideological maintenance of environmentalist and economic agendas over time.

So the question to begin with is this: what historic hegemonic conditions did the 'sustainable development' discourse develop? According to Foucault, we can begin answering such a question by looking at the disruptions in tracing a line thought and the socio-historic conditions within which the disruption occurred. The genealogical line that this article traces is that of ecological science, canvassing its various mutations into environmental politics, deep ecology and sustainability.

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Scientists and Biologists in the 1960s and 1970s: 'canaries in the coal mine'

The second half of the twentieth century saw concern over the environment becoming an increasingly prominent social issue. This section will draw on the seminal work of population biologists and ecologists from the United States during the 1960s and 1970s. During this period the state of the environment was brought to public attention by ecologists and population biologists. Rachel Carson (Carson, 2002), Garett Hardin (Hardin, 2005), Paul Ehrlich (Ehrlich, 1971) and Ray Dasmann (Dasmann, 1972) were all biologists from the United States influential in establishing environmental concerns and motivating grassroots environmental movements. The conflict between industrial and economic growth and concurrent environmental concerns are central to these politics.

The placing of environmental crises within the boundaries of science has lent credibility to the concerns of environmentalists. It has created humans as 'subjects of a vulnerable existence'. This is particularly well demonstrated in the work of Rachel Carson, an American marine biologist and wildlife writer. Her 1962 publication *Silent Spring* was a landmark in drawing public attention to the effects that the chemical industry was having on the public and the wider environment.

The environment for Carson consists of complex and interrelated ecosystems. Her respect for the intimate and balanced inter-relationships between species on earth is illustrated with numerous examples. For example, she wrote:

> Water must be thought of in terms of the chains of life it supports – from the small-as-dust green cells of the drifting plant plankton, through the minute water fleas to the fishes that strain plankton, and are in turn eaten by the fishes and by birds, mink and racoons - in an endless cyclic transfer of materials from life to life. (Carson, 2002, p. 46)

Carson (2002) goes onto explore how synthetic chemicals used for pesticides -in particular DDT (dichlorodiphenyltrichloroethane) - during the post-World War II period were entering lifecycles, leading to what she called 'biocide'. She highlighted the links between humans and their environment by illustrating the problems of human consumption of DDT through this process:

> What of the opposite end of the food chain, the human being who, in probable ignorance of this sequence of events, has rigged his fishing tackle, caught a string of fish ... and taken them home to fry for his supper? (Carson, 2002, p. 49)

Carson was reacting against what she considered the mismanagement of toxic pesticides by the chemical industry and agriculturalists for their own profit (McCord, 2008). Paradoxically, science not only provided the evidence Carson needed to demonstrate human reliance on earth's natural systems, it had also become a handmaiden to the demise of these systems.

Carson's exposure of the chemical industry is an important environmental precedent. She showed how the chemical industry was the child of the Second World War (Carson, 2002, p. 16). In *Silent Spring*, Carson attempted to demonstrate that DDT and synthetic chemicals were not 'heroes', but, rather, were 'elixirs of death' (Carson, 2002, p. 15). Differing from earlier pre-war insecticides that were made from mineral and plant products, the new synthetic chemical insecticides were originally intended as 'agents of death for man' (Carson, 2002). Carson claimed that these chemicals 'enter the most vital processes of the body and change them in sinister and often deadly ways' (p. 16). She illustrated the staggering degree to which DDT could be located in the tissues of a wide variety of life forms, including 'fish, birds, reptiles, and wild and domesticated animals' (p. 15). As she also argued (p. 15), it could be found in humans, maternal milk and probably even unborn babies. Furthermore, she pointed out that there was no mechanism for accountability regarding the potentially destructive effects of DDT on humanity and other living organisms (Lear, 2002).

Carson's claim that the growth of the chemical industry was detrimental to the public good set in motion its own chain of events. Maguire (2004) explored the way that discourses around DDT have influenced popular discourse and policy. He specifically links this to Carson's influence. He writes: 'Subsequent to *Silent Spring*, the quantity and quality of the policy discourse changed dramatically. One after another, a series of government reports reinforced a technological frame that highlighted "the pesticide problem"' (Maguire, 2004, p. 126).

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The ideational function of discourse is revealed in the above discussion on DDT. Discourse represents everyday material substances like DDT (Maguire, 2004). DDT is at once a material substance and an idea. Its meaning is conveyed by the use of the word 'insecticide'. Maguire's analysis of DDT shows that its discursive representation over time led to both its rise and its fall – from becoming a solution to becoming a problem.

> Just after the Second World War, constructing an insecticide as having 'long, persistent action, i.e. good chemical stability' was generally good for sales because this 'residual effect' lowered insecticide costs. In contrast, by 1972, attaching the concept of persistence to a particular insecticide risked not being able to sell any of it. (Maguire, 2004, p. 120)

Carson's critique of pesticide firms involved accusations of their self-serving interests. She alerted the public to DDT's potential to cause 'cancer and neurological disorders' (Ricketts, 2010). While the initial critique of DDT was confined to the closed circles of 'scientific disciplines and government bureaucracies', Carson's work was instrumental in motivating the public (Maguire, 2004, p. 117). The ultimate result was the banning of DDT after a series of congressional inquiries (Ricketts, 2010, p. 21).

Much has been written about Carson and how she used nationalist rhetoric mingled with easily accessible scientific jargon to garner public support for political change (see e.g. McCord, 2008). For example, she evokes the pastoral imagery of the American countryside of yesterday 'where all life seemed to live in harmony with its surroundings' and contrasts this with a dying and silent land where there is 'a rain of poison falling from the skies onto the world of wildlife' (Carson, 2002, p. 86). This conjuring up of an American frontier and 'historically fantastic notions of the American West and its awesome, rugged landscape' presented an 'idyllic nature devoid of human interference' (McCord, 2008, p. 15). In Carson there is no radical left critique of colonial expansion and the impact this has had on the environment, but rather an indictment of the chemical industry and its excesses. Her writing was still very much located in the positivist scientific intellectual tradition (McCord, 2008).

She also talks repeatedly of the 'consumer', 'consumer protection' and the 'public', appealing to liberal democratic notions, and revealing a reformist agenda rather than a radical critique of market capitalism (Carson, 2002; McCord, 2008). Carson's solutions were reformist, and detailed the need for corporations and science to be regulated in the interests of public health and the environment (McCord, 2008). Nevertheless, her impact has been significant in underscoring environmentalist thought and building critique about the human and environmental exploitative features of economic corporations.

Another early conservation biologist was Raymond Dasmann (Dasmann, 1972). His work in the 1960s on threats to the planet by environmental problems culminated in a number of books. His 1972 publication *Planet in Peril? Man and the Biosphere Today* clearly signifies the notion of crisis. He defined the 'proper' goals of conservation as

> achieving a high material standard of living based on rational use of the Earth's resources. There is no necessary conflict between conservation and technology or conservation and international development. Only with the aid of the highest technology can the goals of conservation now be achieved. Only through adequate attention to ecological knowledge and conservation values can the goals of economic development be achieved without serious and unwanted environmental disruption. (Dasmann, 1972, p. 124)

Dasmann's work signals some key themes that have become central to environmentalist thinking. One key theme is the attempt to balance economic and technological development with ecological concerns. Dasmann's unquestioned faith in 'rationality' and his embracing of technological and economic development as a 'good' in improving the material conditions of humanity (particularly the underprivileged) reveal an interesting political conservatism.

Dasmann's work is based on modernist rationality which in turn stems from the Cartesian separation of mind and matter. Like Carson, Dasmann signals the status and importance of 'ecological knowledge' in guiding the premises of economic development. On the surface this claim seems benign enough, but scientific ecological knowledge has been critiqued as being based on a mechanistic worldview that reduces nature to 'a system of dead inert particles moved by external rather than inherent forces' (Merchant, 2005, p. 47). In this way, ecological science

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embodies a view of nature that regards it in terms of physical laws, sees it as a system of parts that work like a machine (Howarth, 1996).

Furthermore, ecological science is based on the assumption that humans are (in a sense) apart from nature, that they can discover its workings and wrap them up in commodified, value-free packages of 'facts' that can be apprehended through human rationality. These assumptions, very evident in Dasmann's work, mean that his critique of the impact of industrialised capitalism on the environment becomes disciplined through the conservative forces of modernist rationality.

Dasmann goes on to tackle the difficult territory of 'high levels of consumption' and 'the wasteful ways that have characterised certain sections of humanity' (Dasmann, 1972, p. 125). While acknowledging that not all people can live this way, Dasmann remains convinced that given a rational choice, no one 'really wants to live that way' (Dasmann, 1972, p. 12). He goes on to refer to alternative 'pleasing ways of living' that can be 'sustained' with some level of permanency (Dasmann, 1972, p. 12). Human progress, for Dasmann, is based on the modernist assumption of technological and scientific progress.

Another significant piece of literature during the 1960s was Paul Ehrlich's 1968 book *The Population Bomb*. Ehrlich was a Stanford entomologist whose neo-Malthusian warnings were conveyed to the public (Ricketts, 2010). He warned that

> [t]he battle to feed all of humanity is over. In the 1970s hundreds of millions of people will starve to death in spite of any crash programs embarked upon now. At this late date nothing can prevent a substantial increase in the world death rate. Ehrlich, 1997)

Ehrlich was convinced that increasing human population and scarce resources were going to intersect with devastating results for human survival. In a recent article, he maintains that '*The Population Bomb* helped launch a worldwide debate that continues today. It introduced millions of people to the fundamental issue of the Earth's finite capacity to sustain human civilization' (Ehrlich & Ehrlich, 2011, para. 2).

Hardin (2005) describes himself as a 'genetically trained biologist'. He wrote an essay which built on the arguments made by Erlich (Ehrlich, 1971). This essay added yet another argument about human greed and competition resulting in the destruction of the natural world. In this essay, Hardin asked 'is this a finite world?' The concepts of 'finite' and 'limits' were in contrast to the dominant ideology of 'growth' (Hardin, 2005).

Hardin's writings are eloquent and descriptive. He evokes the notion of 'carrying capacity' to portray the earth's limits. The following quote comes from the 1968 in *Science* magazine called 'The Tragedy of the Commons':

> The tragedy of the commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. (Hardin, 2005, p. 28)

For Hardin, the tragedy of the commons results because humans acting as 'independent, rational, free enterprisers' are compelled to increase their herd and outstrip the carrying capacity of the land (2005, p. 28). He argues that 'freedom of the commons' leads to its demise (Hardin, 2005, p. 28). His conclusion is that '[t]o couple the concept of freedom to breed with the belief that everyone born has an equal right to the commons is to lock the world into a tragic course of action' (Hardin, 2005, p. 31).

Hardin's arguments concerning population growth also built on the Malthusian thesis that attempts to alleviate poverty were misguided and that we should ignore the starvation of the poorer classes (McNally, 2000). In a similar vein, Hardin writes:

> Without some system of worldwide food sharing, the proportion of people in the rich and poor nations might eventually stabilize. The overpopulated poor countries would decrease in numbers, while the rich countries that had room for more people would increase. But with a well-meaning system of sharing, such as a world food bank, the growth differential between the rich and the poor countries will not only persist, it will increase. Because of the higher rate of population growth in the poor countries of the world, 88 percent of today's children are born

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> poor, and only 12 percent rich. Year by year the ratio becomes worse, as the fast-reproducing poor outnumber the slow-reproducing rich' (Hardin, 1974)

The 'lifeboat ethics' proposed by Hardin were that governments should treat countries like individual lifeboats and not offer to alleviate the distress and suffering of those in overcrowded and under-provisioned circumstances.

Hardin's concept of 'carrying capacity' has survived to inform mainstream environmentalist discourse. It is based on the Malthusian natural economic laws and rational choice theory that humans act rationally and in their own self-interest (McNally, 2000). It is anti-radical and represents a 'naturalistic discourse of poverty' (McNally, 2000, p. 440). The power embodied in scientific inquiry that links to this discourse is disastrous for vulnerable poor people. For example, Harvey (1974) explored the he links between scientific inquiry and political consequences, arguing that 'scientifically based' theories of overpopulation and scarcity of land resources have historically had 'profound political implications' (Harvey, 1974, p. 213).

The Broadening of the Crisis Discourse

During the 1960s and 1970s, the way in which economic development and population growth were impacting on the environment became a central political issue and was signified in the discourse of 'limits'. One of the earliest proponents of this discourse was the Club of Rome. The Club of Rome has been described by one of its members as 'an international group of distinguished businessmen, statesmen and scientists' (Meadows et al, 1992). The report *Limits to Growth* was a study commissioned by the Club of Rome (see King & Schneider, 1993). It was published in 1972, and in total around 10 million copies in 30 different languages were produced (King & Schneider, 1993). *Limits to Growth* concluded with the following statement:

> If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged the limits to growth on this planet will probably be reached sometime within the next 100 years. The most probable result will be a sudden and uncontrollable decline in both population and industrial capacity. (Quoted in Meadows et al, 1992, p. xiii)

The decades since the 1960s have seen scientific indicators of environmental destruction and change, such as loss of biodiversity and climate change, heralded as proof that if humans continue on this track we will face a threat as a species. For example, the Millennium Ecosystem Assessment has strongly influenced environmental policy (Millennium Ecosystem Assessment, 2005). Its purpose was 'to assess the consequences of ecosystem change for human well-being and to establish the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contributions to human well-being' (p. ii). The authors of this report argue that currently sixty percent of ecosystem services are being 'degraded' or 'used unsustainably' (Millennium Ecosystem Assessment, 2005).

Other significant responses to the idea of an environmental crisis have been international summits such as the United Nations Conference on the Human Environment (UNEP) held in Stockholm in 1972. This conference was attended by representatives of 114 countries. The environment was now on the global agenda. The 1970s saw increased concern for the environment and the human impact on it. Scientists were intensely involved in debating the issues. For example, the *Bulletin of the Atomic Scientists* included an edition (September 1972) dedicated to exploring what happened at Stockholm. In it, Berry (1972) claimed that Stockholm had been a success and had resulted in an 'awakening' to the fact that we live in only one world. The concept of one finite world with a 'carrying capacity' that needs to be considered is still a current theme in environmentalism and sustainability. The realisation of the potential for an ecological crisis was then, as it is now, a consideration for governmental policy.

Principle eighteen of the Stockholm declaration made the following assertion:

> Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind. (United Nations Environment Programme, 1972, Principle 18)

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Participants at the Stockholm conference regarded science and technology as essential to inform and validate political and economic policy regarding environmental concerns. Interestingly, they also saw science and technology as central to the environment's demise:

> In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. (United Nations Environment Programme, 1972, Principle 1)

The covert recognition that the 'science' and 'technology' are to be valued not as a 'good' in and of themselves, but in the uses they are put to is an important insight that built on Carson's original perspective. However, this critique deflects an analysis of market capitalism as the underlying cause of the decay and destruction of the earth's ecosystems.

The Stockholm conference was instrumental in putting the discourse of 'sustainability' on the global agenda – although it had not yet gained the prominence in international policy that it has now. Carruthers (2005) argues that at this stage 'sustainability' was a 'comparatively marginalized, genuinely radical idea, carried out in practice by idealists in a handful of pockets of grassroots experimentation in remote corners of the rural Third World' (Carruthers, 2005, p. 288).

Throughout the 1970s there was continued ecological and economic decline, culminating in the Third World debt crisis in 1982 (Carruthers, 2005). It was becoming increasingly apparent during the 1970s that the modern cash economy and economic growth trajectory of the North was not 'viable for the South' (Carruthers, 2005, p. 286). The development process had gone 'tragically wrong' in the South, and millions of people were left marginalized and displaced from their lands and traditional livelihoods (Carruthers, 2005, p. 288),

The World Commission on Environment and Development (1987) attempted to examine the economic and ecological crisis. This was an independent commission set up by the United Nations General Assembly. One of its goals was to 're-examine the critical environmental and development issues and to formulate realistic proposals for dealing with them' (World Commission on Environment and Development, 1987). This resulted in the 1987 Brundtland Report entitled 'Our Common Future'. The commonality of our future as inhabitants of one planet represents a globalising discourse. As Dow (1992) argues, there are very important ways in which the consequences of environmental damage fall disproportionately on those in 'developing' countries. The Brundtland Report sought to solve these issues of inequity by arguing that sustainability required global economic development:

> Far from requiring the cessation of economic growth, it recognizes that the problems of poverty and underdevelopment cannot be solved unless we have a new era of growth in which developing countries play a large role and reap large benefits. (World Commission on Environment and Development, 1987)

The Brundtland Report outlined 'sustainable development' as that which 'seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future' (World Commission on Environment and Development, 1987).

The interpretations of scientifically grounded knowledge, such as those espoused by the biologists canvassed in this essay, are also central to the 1987 Brundtland definition of sustainability. For example it raises the concern that '[s]ome consume the Earth's resources at a rate that would leave little for future generations' and that 'Nature is bountiful, but it is also fragile and finely balanced. There are thresholds that cannot be crossed without endangering the basic integrity of the system' (World Commission on Environment and Development, 1987). Systems-thinking is an ecological way of understanding the world we live in.

Despite these international forums and the urgent need for remedial social action and a new plan of action, the sense of crisis persisted into the 1990s. In 1992 the Union of Concerned Scientists (see Union of Concerned Scientists, 2011) issued a strong warning:

> We the undersigned, senior members of the world's scientific community, hereby warn all humanity of what lies ahead. A great change in our stewardship of the Earth and the life on it is required, if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated. (Quoted in Union of Concerned Scientists, 2011, p. 2)

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The 1990s also saw the publication of 'Caring for the Earth: a strategy for sustainable living' (IUCN/UNEP/WWF, 1991) a revised and updated version of the World Conservation Strategy. This document argues for the necessity of changing attitudes and practices towards more sustainable forms of economic and social development. It has a strong focus on biology-centred knowledge as a basis for its argument about the need for sustainable development. The following quote from 'Caring for the Earth' justifies the centrality of 'nature' for our biological, social and economic well-being:

> Plants and animals, evolving over hundreds of millions of years, have made the planet fit for the forms of life we know today. They help maintain the chemical balance of the Earth, and stabilize climate. They protect watersheds and renew soil. (IUCN/UNEP/WWF, 1991)

The Club of Rome recently commissioned a new report called 'Factor Five –transforming the economy through 80% improvements in resource productivity', which attempts to outline a new economic paradigm based on green technologies. In the introduction to this report, Weizsäcker (Weizsäcker et al, 2011) indicates the extent of the crisis unfolding in the twenty-first century:

> The 21st Century will mark the time when the impact of [the world's] human inhabitants will have the potential to destroy its ability to support us. If the world we live on was three, or three hundred, times larger we would not be writing this book. The truth that the world is now rapidly coming to grips with is that we are damaging our planet to the point that it may not be able to maintain the conditions we have come to take for granted. (Weizsäcker et al, 2011, p. 1)

In part due to the environmental movement, consensus amongst those in the West is that the 'environment' is something 'out there' needing protection and conservation. This represents a dilemma for the interests of capital. The previous dominant post-World War II modes of progress and development, supported by what Blühdorn calls the 'pre-ecological' frame of mind, now lacked credibility (Blühdorn, 2007). Awareness of pressing environmental issues in the West has led to pessimism around both the state of the environment and the perception of being able to address environmental issues.

Broom (2011, p. 123) indicates the 'overwhelming sense of despair' that people can feel on learning of the conditions that face the environment and humanity. The scientisation of nature has provided the stage in which its ruin and possible collapse are objectified and explored. It has provided a 'truth model' as a platform for environmentalist concerns and increasingly a particular form of economic development – that of sustainable development (SD). Sustainable development, Blühdorn argues, is the new 'mantra' of advanced modern societies (Blühdorn, 2007). Carruthers (2005) argues that the understanding in the 1970s of 'sustainability' was soon to be transformed completely as a 'near-universal ordering principle for environmental and development policy across the world' (Carruthers, 2005, p. 289). Through the production of global documents such as 'Our Common Future' (World Commission on Environment and Development, 1987) and 'Agenda 21: Rio Declaration on Environment and Development' (UNCED, 1992), sustainability was transformed from a marginal counter-hegemonic radical movement into a platform for legitimating neoliberal universalising projects (Carruthers, 2005).

The Discourses of Science, Sustainability and Neoliberalism

Sustainable development has become 'arguably the dominant global discourse of ecological concern' (Dryzek, 2005, p. 145). In straddling the camps of economic development and ecological concern, SD purports to dissolve historical conflicts (Dryzek, 2005, p. 147). The project of sustainable development has been exemplified in key inter-governmental documents, including 'Our Common Future' and 'Agenda 21', both of which linked the environmental crisis with broader economic development concerns. The perceived dependence of economic development on the environment was prioritised in 'Our Common Future' as signalling the need for governments to change tack towards a 'sustainable future'. SD is now embedded in every domain of public policy. Few can argue with the broadly humanitarian and ecological goals this blueprint for global action envisions. However, as this article attempts to demonstrate, the SD movement underscores a neoliberal political agenda for global free-market expansion.

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The SD discourse signifies the need for a universal shift in ethics and behaviours in order to develop economic practices and social lifestyles that will sustain the ecological life support systems of our planet (Dryzek, 2005). The SD discourse can be traced to a variety of ideological influences, political movements and writings, including those of the biologists and intergovernmental conferences discussed above. It melds these influences into a unifying whole, but eludes attempts to define what its concrete implications are (Blühdorn, 2007) It has the hallmarks of rhetoric – garnering support from key players through signalling its concern for the environment *and* economic development *and* social imperatives.

Sustainability is often seen to support a set of attributes that is broad enough to draw support from different factions. These include business groups, educationalists, environmentalists, political organisations (both governmental and non-governmental) and others (Dryzek, 2005, p. 145). The perception of common interests achieved by the discourse of sustainability may legitimate a conversation (which is on the surface benign) amongst these groups. However, while the discourse of sustainability binds diverse groups into a seemingly common conversation, it may also obscure the dominance of global neoliberal market interests. Current economic rationality is dominated by the neoliberal hallmarks of individualism, belief in free markets, privatisation and natural justice.

Hill claims that neoliberal policies 'have increased inequalities globally and nationally, diminished democratic accountability and stifled critical thought' (Hill, 2003, para. 1). Thus, the contention that SD is based on neoliberal politics may appear to be unclear, especially since advocates of sustainability argue for democratic participation and the elimination of social inequalities, and champion critical thought. However, this very perception of a chasm is part of the insidious nature of the neoliberal project. Irwin (2010) argues that it can be difficult to detect because of the pervasiveness of key ideologies (such as market ideology) that become 'common sense'.

Neoliberal policy is based on an economic theory that perceives individuals as rational agents who are self-interested. This assumption built on the work of John Stuart Mill in the mid-nineteenth century. Individual self-interest is taken as critical – 'homo economicus' acts as a rational utility-maximising agent and should be free to exercise choice and compete in markets (Larner, 2000). This is then said to maximise both social welfare and economic well-being. Neoliberal policy has been dominant in global economic policy for the last three decades (Dryzek, 2005, p. 122).

SD's link to neoliberal ideology was clearly articulated at the 'Earth Summit', or the United Nations Conference on Environment and Development (UNCED), in 1992 in Rio de Janeiro. This has been pivotal in marrying the idea of 'free trade' with environmental protection (Carruthers, 2005). It championed the idea of dynamic economic development and access to markets:

> The development process will not gather momentum if the global economy lacks dynamism and stability and is beset with uncertainties. Neither will it gather momentum if the developing countries are weighted down by external indebtedness, if development finance is inadequate, if barriers restrict access to markets and if commodity prices and the terms of trade of developing countries remain depressed. (UNCED, 1992)

Neoliberal policy can be found in what Irwin calls the 'market version' of sustainability, where threats to the ecological integrity of the planet are a matter to be addressed by 'innovation (new markets) and efficiency (reduced costs)'. The centrality of 'crisis' in sustainability discourse has performed an ideation function, motivating public support through fear (Irwin, 2010).

As we have seen, the assumption of a freely choosing, rational human being was evident in the work of Hardin (2005). He referred to humans as 'independent, rational, free enterprisers'. Hardin saw an issue with an exponentially increasing human population and finite natural resources and advocated avoidance of helping the poor so that the 'natural laws' can keep population in check. On the other hand, neoliberal discourse tends to favour 'substitutability', which refers to the assumption that human technological advancements and human capital will transcend the limits imposed by the environment.

Larner argues that the term 'neoliberalism' can be understood in a number of ways – relating variously to policy, ideology and governmentality (Larner, 2009). Neoliberalism is characterised by a shift from welfare Keynesianism to free markets unfettered by state intervention. Reforms attributed to the neoliberal agenda favour 'adherence to market based policy options' (Larner,

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2009, p. 9). The emphasis on markets can be seen in the creation of new markets such as the Emissions Trading Scheme (ETS) (Irwin, 2010, p. 79). Neoliberalism involves the 'corporatization, commodification and privatisation' of what were considered public goods under a Keynesian model of economics (Harvey, 1974). In neoliberal terms this includes the environment, which is seen as a 'natural resource' and a 'source of inputs'.

SD has morphed to accommodate key neoliberal assumptions. Irwin (2010, p. 77) argues that sustainability purports to be 'after' neoliberalism, critiquing some of the tenets of neoliberalism such as 'too great an emphasis on rational individualism'. However, as Irwin (2010) notes, the ideology of the market is already 'built into' the discourse of sustainability. Market ideology is central to the discourse of neoliberalism and has come to be seen as 'natural' or 'common sense'. Thus, the hegemonic influence of market ideology means that its pervasive influence may be less detectable. As Birchfeild argues:

> Market logic is applied to more and more areas of human life, as is the case with neoliberal globalization, and what essentially results is an increasing sublimation of politics ... The dominant assumption that human nature and behaviour can be characterized as economizing, maximizing utility to secure self-interest, gains acceptance as an inviolable truth. (Birchfield, 1999)

The potentially liberating and critical ideas embedded in 'sustainability' (such as concern for ecological health and social justice) and transferred to the level of social policy are valuable. However, the dilemma is that they have gained mainstream acceptance within the context of neoliberal hegemonic logic. Irwin (2010) notes that the egalitarian values underpinning the development of 'sustainability' – such as intergenerational equity – have morphed into neoliberal translations. Neoliberalism is a 'form of market ideology' 'that is inherently antithetical to democratic principles' (Birchfield, 1999). Irwin (2010) argues that 'sustainability-as-neo-liberalism' is counter to its radical roots in the green movement. In many ways, the present article attempts to demonstrate that while 'sustainability-as-neo-liberalism' may be counter to some of the philosophical and political tenets of the green movement (especially those of deep ecology), in many respects there are many continuities.

Discussion and Conclusion

Foucault considered that discourses in society are 'multiple, overlapping and often conflicting' (Castree, 2005, p. 146). This analysis has attempted to demonstrate how discourses of the environmental crisis have evolved in relation to particular political and economic interests. Discourse can have a conservative function in society by shaping our understandings of everyday reality in ways that become commonsensical. For example the 'naturalistic discourse of poverty' can make sense to people who consider the rise of free-market capitalism to be a result of rational humans acting in a self-interested way.

Through using Foucault's genealogical history strategy I have attempted to point to key continuities and mutations in thought that indicate shifts in worldviews. As a 'model of truth', hailed as neutral and value-free, the science of ecology lent its credibility to environmentalist concerns. The positivist assumptions underpinning scientific ecology and the conservative politics of population biologists, however, reveal a value-laden discourse that has contradicted the radical and disruptive tenets of deep ecology. On one level, this interpretation has tried to show how the science of ecology has tried to secure the philosophical assumptions of environmentalism 'within its bounds' (McHoul & Grace, 1998, p. 23).

By constructing a universalising mindset to resolve tensions between the interests of capital and those of environmentalists, the discourse of SD has attempted to avert a legitimation crisis of capitalism. The acquiescence of the public to environmental concerns is due in large measure to the early work of writers such as Carson. In this article I have examined how the ecological ideas as represented by Carson and other biologists are central to environmentalist discourse. These include a focus on systems, and on interdependence and balance in nature and between the human and non-human world. Ecological thinking is a radical counter to dominant frames of mind which define nature as separate from humans. However, it has an uncertain positioning in the scientific field which has hitherto seen humans fragmented from nature. Ecology itself may not have dealt

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adequately with this rupture on a philosophical level. As 'science', it is open to critiques such as that of Wilshire, who claims: 'In a real sense, it finds no room for us as integral beings in an integral world, for as it grasps us it splits us into minds and bodies' (Wilshire, 1990).

A number of ideas that are currently central to sustainability have been drawn from the works of biologists in the 1960s and 1970s. The rich eco-centric understandings evident in the work of Carson in particular are lost in the neoliberal version of sustainability. The concepts Carson brought to public awareness such as 'nature as a complex ecosystem' have been co-opted into the neoliberal version which predominantly considers nature in terms of a 'resource'. Irwin argues that neoliberalism can be seen to impoverish 'environmental morality and politics' (Irwin, 2010, p. 72). Certainly an environmental morality that sees humans as embedded in the natural world, dependent on each other and shaped by our collective existence, is an important insight. These insights are potentially disruptive to the dominant ideologies that support economic growth.

Neoliberal versions of sustainability involve the 'the greening of capitalism'. This takes the form of 'superefficient architecture and transportation systems, as well as biomimicry and service leasing' (Rogers, 2010, p. 6). The creation of eco friendly products through innovative methods and new technologies means new markets, and increased efficiency reduces costs (Irwin, 2010, p. 21). However, as Rogers (2010) points out, the increase in profits goes back into the business, fostering economic growth. Irwin (2010) argues that in the neoliberal versions of sustainability, the market is the bottom line. When the environment is only important in relation to markets and economic growth, it is valued for particular reasons.

In SD, the concept of 'growth' is replaced by 'development', signifying egalitarian intentions. However, with the neoliberal 'management and manipulation' of the current ecological crisis to generate Third World debt, privatisation schemes will only deepen poverty and environmental destruction (Harvey, 2005). Blühdorn argues convincingly that key features of late-modern societies are simply 'unsustainable', and that sustainability has become a contradictory discourse (Blühdorn, 2007). He argues that the field of eco-politics has made substantial advances, but has failed to address the underlying causes of environmental destruction (Blühdorn, 2007). Harvey (2005) puts the danger of continuing on the course of environmental devastation in the neoliberal era succinctly. He writes:

> The era of neoliberalization also happens to be the era of the fastest mass extinction of species in the Earth's recent history. If we are entering the danger zone of so transforming the global environment, particularly its climate, as to make the earth unfit for human habitation, then further embrace of the neoliberal ethic and of the neoliberalizing practices will surely prove nothing short of deadly. (Harvey, 1974)

The promise of deep ecological thought as a discourse that provides a level of radical interruption from the dominant anthropocentric assumption of the West is questionable. According to Hay (2002), deep ecology is both a movement and a philosophy. At its base, he argues, there is a moral individualism that is consistent with western philosophical traditions, perhaps enabling its co-option into dominant discourses such as sustainability (Hay, 2002).

Another dilemma for environmentalism is the centrality of science in providing a platform for justifying its inclusion in policy and practice. There are tensions in the broad acceptance of science and environmentalism that should not be ignored. First, science is limited in its applicability to social change because of its inability to establish ethical and moral considerations. As Wilshire (1990) notes, 'science is considered the paramount way of ... knowing ... [however,] it cannot establish what nearly everyone assumes: that it itself is good'.

Deep ecology has struggled to take hold as a movement (Hay, 2002), While its key insights have been harnessed for political gain, environmentalism has gained the strongest ground when it has stressed 'survivalist' concerns within a language of 'scientific truth' and crisis (Dryzek, 2005). Embedded in much environmentalist discourse is a concern for urgent action to be taken to mitigate against the destructive effects of humans on the environment before it becomes unfit for human habitation. Mueller has explored how the discourse of ecological crisis has fed into the presumption of the need to 'scientifically [prove] that a crisis exists' (Mueller, 2009, p. 1031). Likewise, Oreskes argues that the domain of environmental policy is dependent on scientific 'truth' claims to justify demands for government intervention (Oreskes, 2004). Increasingly, scientific

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proof of an ecological crisis is being accepted as a moral imperative and motive for the '"greening" of the individual, corporations, and society' (Mueller, 2009, p. 1032).

As Oreskes (2004) notes, however, basing political change on the onus of scientific proof leaves it open to a backlash. For one thing, there is the possibility that scientific 'evidence' of environmental decline may be challenged – as, for example, Bjørn Lomborg (2001) has done in *The Skeptical Environmentalist.* Lomborg, a statistician, points to selective use of material by scientists in the creation of what he considers an environmental crisis that is based 'more on myth than on truth' (Lomborg, 2001, p. 32). As Oreskes claims, the scientific community has historically been divided about a range of environmental issues. The important point he makes is that '[i]n all but the most trivial cases, science does not produce logical indisputable truths about the world' (Oreskes, 2004, p. 369). Placing the burden of proof on the scientific community is at best a 'misunderstanding ... of the role that science could ever play in policy' (Oreskes, 2004, p. 369).

Furthermore constraining policy change by requiring it to have the backing of 'scientific proof' tends to obscure ideological and political motives. For example, 'survivalist discourse' from the 1970s based on 'carrying capacity' and 'limits to growth' is essentially utilitarian and homocentric – completely at odds with some of the stated premises of deep ecology (Dryzek, 2005; Merchant, 2005). Deep ecology has been critiqued for its lack of political analysis (Merchant, 2005). It has displayed a political naivety in its attempts to criticise cultural worldviews (such as the domination of nature) as being unrelated to wider political struggles (Merchant, 2005).

The philosophical, political and economic discourses embedded in environmentalist and sustainability movements are revealing. The arguments concerning environmental degradation are co-opted by dominant modernist rationality, deflecting attention away from the capitalist mode of production itself and ascribing it to causes such as over-population and over-consumption. This historical discourse analysis has attempted to reveal a political conservatism embedded in environmental discourses that justify and further the interests of capital.

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Article Three:

The Neoliberalisation of Sustainability

This article has been co-authored with my supervisor, Dr David Neilson. We worked in close collaboration to detail the process of neoliberalisation of sustainability. Initially, the tenets of radical sustainability discourse are discussed in some depth. We then use Laclau's theory of articulation to detail how this early discourse has been articulated with market ideologies of nature and the neoliberal capitalist project. This analysis focuses on key United Nations' documents promoting a new form of sustainable development in the shift toward neoliberal capitalism. This has involved a reconfiguration of the economy-nature relation. The economy–and in particular neoliberal market economy–has been recast as the 'savior' of environment rather than the cause of the major issues now effecting it.

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The Neoliberalisation of Sustainability

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ABSTRACT Sustainability – embedded in intergovernmental global agreements and filtering, reassuringly, into 'common sense' – is now the globally dominant environmental discourse. However, this dominance does not equate with the mainstreaming of its original meaning that is tied up with a radical critique of capitalism that crystallised in movements of both the South and the North in the 1970s. Rather, radical sustainability discourse has been effectively neutralised by its 'articulation' with the neoliberal capitalist project. This article examines this articulatory shift, focusing particularly on a post-Marxist neo-Gramscian inspired discourse analysis of the key documents of intergovernmental global agreement. The article argues for the rearticulation of sustainability to a new counter-hegemonic 'reimagining' of nature.

Introduction

The contemporary field of sustainability and environmental discourse is based on an 'on-going international interaction between new social movements, academia, politics and business' engaged in the Rio process (Huber, 2000, p. 270). Although political and ideological contestation, or as Gramsci called it a 'war of position', characterises this process, from the neoliberal Washington Consensus of the mid-1980s and continuing into the present, the neoliberal bloc has dominated this struggle. This article explores the thesis that neoliberal articulation of sustainability with the broader field of contesting perspectives combined with a strategy of 'passive revolution', that are together summed up as the Rio process, has led to earlier radical discourses being incorporated and subordinated to neoliberal hegemony.

A viable hegemonic formation, according to Gramsci, is based in material concessions and ideological incorporation of subaltern classes and oppositional movements to achieve broad consent to a particular capitalist project of economic and social development. In contrast to a 'war of manoeuvre' involving military contest and direct coercive domination, a 'war of position' is engaged on the terrain of democratised civil society, within the changing terms of successive hegemonic formations, as a political and ideological struggle between contesting movements to win the hearts and minds of the citizenry (Mayo, 2005).

This article focuses in particular on the process of neoliberal incorporation of the radical ecological discourse of sustainability. In post-Gramscian and post-Marxist discourse analysis, the incorporation of oppositional discourses is about 'articulating' or linking them with hegemonic discourses to form a 'chain of signification' that is grounded in the hegemonic paradigm (Laclau & Mouffe, 1985; Hackell, 2013). How such an outcome is contingently achieved varies across different fields of hegemonic contestation. In the case of ecological politics, such an articulation has been centrally about agents of neoliberalism reworking, and then championing, the discourse of 'sustainability'. Fundamental to this process has been the reconfiguring and depoliticising of the

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early radical ecological movement's construction of the relation, central to all discourses of sustainability, between ecology and economy.

Radical concepts of ecological sustainability that crystallised in social movements of the 1970s were based on a critique of capitalism's expansionist logic. In this discourse, capitalism is seen to threaten ecological sustainability, the universal pre-condition of all economies, and thus life on the planet, and especially coming from the South, is also directly undermining viable human society by generating poverty and inequality. However, neoliberalism has turned this radical discourse 'on its head' (Carruthers, 2005, p. 285). Though this up-turning is the case in relation to both ecological and socio-economic aspects of the early radical sustainability discourse, we concentrate analysis here on the ecological aspect.

The first and most important step in this process has been to shift the terms of the relationship so that economy and ecology become 'equivalential', i.e. equally important, and thus mutually constraining, components of 'sustainability'. The project of ecological sustainability is thus constrained within the parameters of economic sustainability. This move is more far-reaching than first appears because within a 'problem solving' uncritical view of the 'economy' (Cox, 1981, pp. 129-130; Ford, 2003, p. 122), and linked with the process of its neoliberal depoliticisation, it ('economy') becomes synonymous with the naturalised market order. Capitalism's very survival – rather than its radical transformation – becomes an integral and necessary element of the project of 'sustainability'. However, this is still not the end of it because in a final neoliberal articulation of the relationship, markets and private enterprise, contained within the neutral signifier of 'economy', are presented as the means by which ecological sustainability is to be achieved. Thus, not only do the environment and the neoliberal capitalist project become the equivalential components of sustainability, market capitalism becomes the very means by which ecological sustainability can be achieved. In particular, as Van der Heijden (2007) argues, there has been a 'massive surrender' to the 'ecological modernisation' (or the greening of capitalism) movement, which views reform not only as occurring within current neoliberal culture, but views capitalism as the means to achieve sustainability.

This reconfiguration of the economy–ecology relationship now turns full circle, and effectively creates a chain of signification whereby 'sustainability' becomes the hub of the discursive formation that not only neutralises and marginalises radical ecological discourse, but brings an environmental perspective within the constraining ambit of the neoliberal world view. This process is what we broadly define as, in an adaption of Brenner et al's concept (2010, p. 216), 'neoliberalization', i.e. a contradictory and uneven subordination to, and articulation of, oppositional discourses within neoliberal hegemony.

Pitcher (2011) offers a general argument about how this process of neoliberalisation of concepts from oppositional critiques and radical social movements associated with the New Left of the 1970s is not actually an expression of the latter's successful mainstreaming. Rather, he argues that the New Left has been neutralised by neoliberal discourse, which now appears as its major advocate. This kind of strategy is understood by Gramsci as 'passive revolution', i.e. a process by which the hegemonic project appears to incorporate and champion oppositional discourses, but actually undermines them by selective and skewed adoption.

As sustainability's 'self-declared champion', neoliberalism 'defends itself against critique', 'bolsters its moral legitimacy', and removes oppositional discourses from contention (Pitcher, 2011). Not only is the radical ecological movement effectively marginalised, but more, environmentalists can be satisfied and relieved that 'something is being done' because sustainability is now a mainstream project (Vlachou, 2004; Bluhdorn, 2007). More subtly, environmentalists can be satisfied that the project is still vital because 'sustainability' 'continues to signify [for them] an "original" meaning'. However, by naturalising, and thus invisibilising, neoliberal capitalism as 'economy', and then making it equivalential with ecology, sustainability is 'depoliticised and rendered inert' (Pitcher, 2011). More than just posing no threat to the neoliberal project, mainstream sustainability discourse is positively incorporated into it. As Pitcher says, 'once marginal and oppositional positions have moved from the margins to the mainstream' (p. 90), then the struggle 'to save the environment' becomes straightforwardly about meeting targets, changing attitudes, being responsible consumers, etc. That is, 'saving the planet' appears as a non-ideological struggle to win the hearts and minds of individual citizens to the cause – but this struggle is actually entirely contained within the invisibilised framework of neoliberal hegemony. As many have

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commented, following Gramsci, ideology is at its most effective when it appears as self-evident taken for granted common sense (e.g. Althusser, 1971).

This article develops – within the context of a French regulation school inspired periodisation of recent capitalist history – a neo-Gramscian post-Marxist discourse analysis of how the radical sustainability perspective has been neoliberalised. Two mid-range eras or 'models of development' characterise recent capitalist history (Lipietz, 1988; Neilson, 2012). The Fordist model of development, practically implemented as a modified version of Keynes' blueprint presented at the Bretton Woods conference of 1944, delivered stable economic growth with social progress across the advanced capitalist countries for about a generation (Aglietta, 1999; Neilson, 2012). Amongst countries in the non-developed capitalist world, unevenly successful projects of 'modernisation' and industrialisation were also pursued (Lipietz, 1987). However, increasing industrial output also delivered deepening ecological degradation. The radical ecological response to this growing problem comprised different threads across the developed and non-developed countries, which advanced from the outspoken pleas of writers and activists in the 1950s to crystallise in the radical social movements of the 1970s (see Neilson, 1996; Tulloch, 2013).

At the same time, however, the deepening economic and political instability of the Fordist model of development in the 1970s provided the strategic opportunity for the ascendancy of the neoliberal project. From as early as the 1930s, neoliberalism was ideologically crystallising as an alternative economic and social vision summarised as a project to transform the world into a 'global market civilisation' (Gill, 1995; Foucault, 2008). This evolving neoliberal project focused on releasing capital from the national and international constraints that the Keynesian-inspired Fordist model of development had placed on the power of capital (Neilson, 2012). Especially during the 1980s, the neoliberal project was ideologically presented, most brilliantly by its leading ideologue Georg von Hayek, as a stable and emancipatory 'spontaneous social order'. During this time, the ideology also became transformed into a model of development whose implementation has facilitated the globalisation of market capitalism. This practical project was, and continues to be, promoted by the key regulatory agencies (International Monetary Fund and World Bank) of the so-called Washington Consensus, and in more recent times by the World Trade Organisation. Its key instrument has been the neoliberal national template including an external component of financial and trade liberalisation plus privatisation that has exposed countries to global market forces, combined with a domestic component focused on the flexibilisation of labour markets and welfare state restructuring. Though the project has been under severe pressure since the 2008 global financial crisis, it remains globally dominant. In this era of the global market, the radical ecological movement has been steadily brought within the ambit of neoliberal ideology. It is argued here that the subordination of dissenting radical ecological discourses has led to a watershed in eco-politics from the 1980s onwards.

Education for Sustainable Development (EfSD) has been an integral part of this shift in eco-politics. Since the 1990s, it has drawn on 'institutional discourses', most notably United Nations (UN) policy documents, and has been promoted through the Rio process (Berryman & Sauve, 2013). Essentially, educators have been called upon to promote a generational shift in the construction of citizens supportive of the central tenets of sustainable development. This now dominant approach in citizenship education is considered by some as 'behaviourist' and lacking a critical dimension and therefore unlikely to deliver on its promise of a sustainable citizen (Robottom & Hart, 1993). This article contributes to the critical perspective by revealing how the Rio process itself has been brought under neoliberal ideological hegemony. While appearing to champion the core concerns of environmental educators, the Rio process has actually redefined sustainability in ways consistent with the neoliberal agenda, which as a result is bolstered, legitimated and protected from critique (Pitcher, 2011).

The rest of the article is divided into the following sections. First, it outlines the process of development and crystallisation of the radical sustainability discourse during the Fordist era. Second, it examines the process of the neoliberalisation of the radial discourse paying particular attention to the Rio process. Finally, the article tentatively begins to explore how sustainability discourse can be re-radicalised.

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Drawing the Battle Lines:
the early pre-neoliberal radical discourse of sustainability

What we will describe below canvasses the emergence of a radical ecological and social movement that is unified in its stance against capitalist economic and industrial growth gaining traction during the 1960s and 1970s, the work of the early ecologists makes frequent reference to 'limits to growth', and the desirability of small-scale production and self-sufficiency.

The environmental discourses of the period between the 1950s through to the 1970s were mapped out by key writers and activists pioneering an ecological critique of the damage humans were doing to the natural world. There were different groups involved in this discursive construction, with orientations that veered from left to right, waded from the shallow into the deep philosophical waters, and were geographically located in the North and the South. While varying degrees of ecological critique are evident, there is a unifying thread that signifies the importance of natural ecosystems for human survival. John Dryzek (2005) has called this discourse 'survivalism', and it informed the environmentalist movement in a range of ways. This is the focal point of this section, which will demonstrate not only the complexity of these early discourses, but their multiplicity of political orientations. The significance of survivalist discourse is that it opened up a legitimised scientific space for environmentalists to argue that capitalist economic growth was at odds with ecological and social sustainability (Tulloch, 2013).

The survivalist discourse emerged during the post-World War II long boom. This period was grounded in the Fordist model of development, and centrally inspired by Keynes and transnational agreements made at Bretton Woods in 1944. It was a period of economic and social stability where steady growth across the developed capitalist countries, combined with new industrialisation amongst some of the non-developed countries, was fuelling not just the advance of consumerism, but an escalation, both in breadth and depth, of ecological destruction and destabilisation (Neilson, 2012). Green movements of the 1970s, emerging in both the South and the North, were engaged in a counter-hegemonic struggle against the ecological fall out generated by the productivist class compromise of Fordist capitalism.

Environmentalist discourse that informed green movements in the 1970s is based, in part, on the seminal work of population biologists and ecologists during the 1960s and 1970s. In the USA during this time period, the work of scientists such as Rachel Carson (2002), Garett Hardin (1974, 2005), and Paul Ehrlich (Ehrlich, 1968) was significant in establishing public concern for the environment. This proved to be pivotal in motivating the formation of grassroots movements (Tulloch, 2013). These new social movements sought to address the environmental and social cost of economic growth. The conflict between industrial and economic development and concurrent environmental concerns are central to these politics.

However, within the ecological field there is a startling degree of difference in environmental critique and political orientation. Interrogations centre on concern for the impact of human activity on the ecological realm. Two central issues were the impact of the application of pesticides on ecosystems and population growth (Tulloch, 2013). The former concern was brought to public attention by Rachel Carson who reacted against the use of toxic pesticides (in particular DDT) by the chemical and agricultural industries, who she argued were motivated by financial profit rather than concern for the Earth (McCord, 2008). Carson (2002) gives numerous examples in her book *Silent Spring* of what she calls the destruction caused by 'reckless large-scale treatment' of plants by chemicals. The logical corollary of small-scale local food production is significant in the formation of an early sustainability discourse.

Many of these early harbingers of ecological damage also sought to raise the issue of population growth. Malthusian arguments concerning the impact of population growth became part of both scientific and public discourse during this period, and indeed remain so. The Club of Rome (founded in 1968) sponsored a now famous study called *The Limits to Growth* (Meadows et al, 1972). This report began by indicating the following trends of concern: 'accelerating industrialization, rapid population growth, widespread malnutrition, depletion of natural renewable resources'. These elements, it was argued by Meadows et al, were growing exponentially. They concluded that the limits to growth of this kind would occur within the next one hundred years, resulting in 'sudden and uncontrollable decline in both population and

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industrial capacity' (p. 1) Striving for global ecological and economic equilibrium (and not growth) was recommended by this report.

Another significant piece of literature during the 1960s in this regard was Paul Ehrlich's book *The Population Bomb* (1968). Ehrlich was a Stanford entomologist whose neo-Malthusian warnings of starvation were conveyed to a concerned public (Ricketts, 2010). In *The Population Bomb*, Ehrlich argued that an increasing human population and scarce resources were going to collide and that this would have devastating results for human survival.

Politically the views of early ecologists tended to range from liberal-democratic to radical. However there were some conservative leanings also evident. The solution to the Earth's woes was, more often than not, seen in terms of social democratic measures that would regulate, but not structurally change, the social order.

On the other hand the 'life boat' ethics of Hardin (1974), a genetic biologist, led to a startling suggestion that those in the Third World who were suffering from famine should be left to their own fate. This diabolical political trajectory is haunted with undercurrents of genocide, but it is an excellent illustration of the diversity of positions in survivalist discourse. In addition, Hardin's essay, 'The Tragedy of the Commons', added yet another dimension to survivalist concerns. He argued that human greed might outstrip the Earth's ability to sustain its inhabitants. The 'logic of the commons' is central to Hardin's argument that self-interested actors will attempt to utilise natural resources for their own benefit. He put forward the premise that the Earth had a 'carrying capacity' that should not be exceeded or it would result in the destruction of the natural world. Hardin maintained that the natural world was finite, and not boundlessly able to support economic growth and human consumption. Limits to human practice, such as population growth, economic activity, and consumption of natural resources, are central to his survivalist position. Of significance to this article is that the concepts of 'finite' and 'limits' were contrasted with the dominant ideology of 'growth' (Hardin, 2005). Hardin's concept of 'carrying capacity' is based on the Malthusian natural-economic laws and rational choice theory that humans act rationally and in their own self-interest (McNally, 2000). It is anti-radical and represents a 'naturalistic discourse of poverty' (p. 440).

As demonstrated above, the promotion of 'quality of life' for those in developed countries was something that was not uncharacteristic of early environmentalist discourse emanating from Western ecologists. It was to come under attack, however, from at least two main areas: the deep-green ecologists and the social ecologists. Deep-green ecology is based on the thought of Norwegian philosopher Arne Naess (1912-2009). Naess distinguished deep from shallow ecology. Launching a critique on what he called the 'shallow ecological movement', Naess decried their central objective of improved health and affluence for those in developed countries. Naess outlined the terms of reference for a new social movement called deep ecology. His ground-breaking article, 'The Shallow and the Deep, Long-Range Ecology Movement', argued that deeper philosophical questions needed to be asked within the environmental movement about the place of humans as a species in nature. He called this new approach 'ecosophy' (Naess, 1973; Rothenberg, 1992).

The deep ecology movement is based on a number of philosophical premises that are outlined by Naess. One of the most significant of these is that of 'biospherical egalitarianism' which is the premise that all life on Earth is of equal worth and as such has an 'equal right to live and blossom' (Naess, 1973, p. 344). The coupling of 'biological egalitarianism' with the second principal of 'rejection of the man-in-environment image in favour of the relational, total-field image' is at the heart of deep ecology. The human species is no longer seen as the master of nature, a central capitalist premise, but rather as just one part of 'the biospherical net or field of intrinsic relations'. Naess based his version of 'systems theory' on the work of ecologists like Rachel Carson and her work on ecosystems and interrelationships between organisms. This ecosophy position also endorses an anti-class posture (exploiter and exploited) and points to the desirability of complexity of economies and the self-realisation of the human as a whole person. In this regard, deep ecosophy is against a fragmented, class-based labour force. It promotes a life of co-existence, cooperation and rich complexity and diversity.

While the deep ecologists were launching a radical attack on capitalist development and the horrors it visited on the environment, the social ecologists were busy building their own line of defence. Social ecology is based on Murray Bookchin's seminal essay, *Ecology and Revolutionary Thought*. In this essay, Bookchin argued for a particular kind of community. This was 'a relatively

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self-sufficient community, visibly dependent on its environment for the means of life' (Bookchin, 1968, p. 97). In this essay he focused on the notion of power relations, arguing that patterns of domination both between humans and humans and nature were at the root of environmental issues. He perceptively argued that current patterns of industrialisation treated nature and human as objects, and he called for the humanisation of humanity through the building of 'real communities'.

Economically Bookchin called for 'balance', making use of 'local raw materials and energy sources'. He finished the essay with a utopian vision of a particular kind of community that was based on harmonised relationships between people and between humans and nature:

> Freed form an oppressive routine, from paralysing repressions and insecurities, from the burdens of toil and false needs, from the trammels of authority and irrational compulsion, individuals will finally, for the first time in history, be in position to realize their potentialities as members of the human community and the natural world. (1968, p. 98)

Bookchin's early rejection of capitalism was an initial attempt to radicalise ecology – he called this 'the critical edge of ecology'. He argued that the issues that ecology raises about human survival were valuable and placed nature above human reason. He also argued that under market capitalism, both humans and nature became commodified. He summed it up as follows: '[t]he plundering of the human spirit by the market-place is paralleled by the plundering of the earth by capital' (1968, p. 92).

Thus, drawing on the insights of social ecology concerning the socially exploitative features of capitalism, environmentalism during this period was not just concerned about the natural world. Van der Heijden (2007) commented that during this period of time environmentalism was very much tied up with 'new social movement discourse in general' (p. 203). By this he refers to developmental concerns of the Third World, such as dispossession and poverty, women's rights, human rights and democratisation. This wave of counter-culture against the travesties of the productivist Fordism regime and the ravages of capitalism called for nothing less than radical structural reform.

The deep ecosophy model developed by Arne Naess is in many important respects at odds with the social ecology of Bookchin. Indeed, Bookchin (1988) critiqued the environmentalist movement of the 1960s and 1970s as 'vapid'. He went on to argue that the deep ecology of Naess was 'vague, formless, often self-contradictory and invertebrate' (p. 3). Bookchin was at pains to demonstrate that, in contrast to deep ecology, his perspective was truly a radical one, in that it rallied against 'domineering market society' and oppressive features such as sexism, class-rule and racism.

Nevertheless, despite (or perhaps because of) the diversity of positions illustrated above, the early sustainability discourse that was gaining ground during the 1960s and 1970s was based on the underlying consensus that economic growth conflicts with ecological sustainability. Prior to the 1980s, then, sustainability eco-politics was pre-dominantly a form of radical resistance to industry, economic growth and modernisation (Huber, 2000). It pushed for self-sufficiency among communities, especially in the Third World, and limitation of material needs (anti-wealth accumulation) (Huber, 2000; Carruthers, 2005).

By the 1970s, the North's development trajectory was being questioned as an appropriate strategy for Third World people due to the persistent lack of material improvement in their lives. The development plan of the South in line with the North was also brought into question by economists who advocated for steady-state economics (Carruthers, 2005). As Carruthers notes, development had displaced many Third World people from their traditional livelihoods without fully involving them in the capitalist economy. In the 1970s, this critique resulted in 'the creative quest for a sustainable alternative ... new formulations – grassroots development, pro-peasant development, eco-development, bottom-up development, people-centred development and so forth' (p. 288). A series of conferences in the Third World championing grass roots participatory localised self-reliant subsistence production. Herman Daly's focus on 'qualitative development' rather than expansive 'quantitative growth' is a feature of such economics (Carruthers, 2005).

Thus, scientists, ecologists and environmentalists in Western countries were significant in the discursive construction of a double critique (ecological and developmental) of the industrial growth paradigm of the advanced capitalist countries. The early discourse of sustainable development has

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two main dimensions. The first is mostly concerned with the effects of capitalism-led industrial growth on the environment (including pollution, deforestation, biodiversity loss through habitat destruction) within the context of the rapidly expanding industrial North. The second dimension of sustainable development in the early years was the effect of the 'developed' North on the 'developing' South.

As we have attempted to demonstrate in this section, although there were multiple positions within environmental thought in the 1960s to 1970s, an increasingly urgent and radical anti-growth discourse was emerging. Although, implicitly connecting with the dominant capitalist form of social relations that underpins growth, this aspect was under-developed in the discourse. Nonetheless, by harnessing the conceptual power of scientifically sanctioned terms, such as 'carrying capacity' and 'limits to growth', the Fordist model of capitalist development was brought into question. Concern about the destruction wrought by industrial capitalism on the natural ecosystems and the consumption of resources on which human life depends was at the forefront of a new quest for meeting basic human material needs through small scale sustainable development.

The Neoliberalisation of Sustainability Discourse: the Rio process

In 1985, Bookchin identified a juncture in the development of environmental thought. He argued that, '[e]ither it will follow the path of adaptation to the existing society or the path of revolutionary opposition' (Bookchin, 1985). With all the hindsight of nearly 30 years, we argue in this section that environmental thought has taken the rather convoluted path of adaptation. Becoming articulated with the neoliberal agenda, much of the revolutionary promise of early environmental sustainability thought has regrettably been subsumed.

With Fordism's transformation, driven politically by the agents of the neoliberal project, the New Left of the new social movements – centrally including the ecological movement – became susceptible to neoliberal incorporation. Thus the radical 1970s understanding of 'sustainability' has been transformed as a 'near-universal ordering principle for environmental and development policy across the world' (Carruthers, 2005, p. 289). Sustainable development has been completely altered from a marginal counter-hegemonic radical movement into a platform for legitimating neoliberalism's universalising project. The early sustainability discourse emerging from environmental survivalist concerns has now been replaced by 'a rising tide of economic growth lifts all boats' discourse. As we hope to demonstrate here, the now dominant discourse of sustainable development has arisen out of a step-by-step reversal of the causal relationship between capitalism and sustainability. The first most important step in this process concerns the discursive repositioning of ecology and environment as of equivalent priority and only externally related, that grounds the fuller and more explicit process of neoliberalisation where global expansion, economic growth, corporatisation, ecological adaptation to industrial growth, and the commodification of the non-human world (both biotic and abiotic) is repackaged to appear as the spearhead of the sustainability project.

Sustainable development discourse is always concerned with the organically dependent relation between humanity and nature. Changing the way this relationship is constructed and presented is central to explaining sustainability discourse's neoliberalisation. Thus, there are several strategic steps involved in the process of the rearticulation of sustainability with neoliberalism. In this section we outline these steps as follows. Firstly, the presentation of depoliticised economy is established, which is regarded as of equal importance with ecology for human survival. Secondly, construction of sustainable development in terms of 'neutral' market economics is achieved. Thirdly, human–nature relations are reframed in terms of a depoliticised construction of humans as nature's managers and nature as private property.

The main terrain of contestation for the 'war of position' in the global ascendency of neoliberal sustainable development since the mid-1980s consists of a series of global conferences and resultant political declarations and reports called the 'Rio process' (Huber, 2000) The sustainability agenda integral to the Rio process was foreshadowed by the Stockholm Summit on the Human Environment in 1972. This conference was the first in a series of four global UN conferences on sustainability. It was followed by the World Commission on Environment and Development in 1992 (which produced the Rio Declaration and Agenda 21), and the Johannesburg

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World Summit on Sustainable Development in 2002 (Rio+10). The final conference was the UN Summit on Sustainable Development (UNCSD) held in 2012 (Rio+20).

Sustainable development was initially launched as a global economic development trajectory in 1987 through the Brundtland Report, officially known as *Our Common Future, Report of the World Commission on Environment and Development* (World Commission on Environment and Development [WCED], 1987). The Brundtland Report is considered by Huber (2000) to be part of the Rio process, which is regarded as spanning several decades and being central to the construction of sustainable development as a dominant discourse. Using the Rio United Nations Conference on Environment and Development (UNCED) of 1992 as a platform, the Rio process refers to the interaction among key social groups and movements in pursuit of the goal of sustainable development. Huber has described the Rio Process as 'the ongoing international interaction between new social movements, academia, politics and business that has led to the formulation of environmental policy strategies' (Huber, 2000, p. 270).

The Brundtland Report provided the often cited definition of sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987).The emphasis on 'needs' and 'development' in the same breath is significant as it positions economic development as the critical issue for meeting people's needs – both now and in the future – while ecological sustainability is only implicitly and indirectly identified and subtly cast as a problem of the future. Signifying the importance of people's material needs gives the appearance of championing the concerns raised by the earlier radical sustainability position around global poverty. However, it is also part of a process which foregrounds the economic rather than the ecological.

A further step in this process is to put protection of the environment and economic development on the same footing. Under a section entitled 'New Approaches to Environment and Development', the Brundtland Report stressed that:

> [E]conomics and ecology must be completely integrated in decision making and law making processes not just to protect the environment, but also to protect and promote development. Economy is not just about the production of wealth, and ecology is not just about the protection of nature; they are both equally relevant for improving the lot of humankind. (WCED, 1987)

Thus, the first step in the neoliberalisation process was achieved in the Brundtland Report, which essentially put economic growth, eradication of poverty, and ecological integrity on an equal footing, and as mutually interdependent. This report also signalled the viability of 'markets' and the importance of a globalising project in sustainable development. However, this is smuggled in as part of an apparently neutral and non-partisan perspective. The reports states:'[t]hus the goals of economic and social development must be defined in terms of sustainability in all countries – developed or developing, market-oriented or centrally planned' (WCED, 1987).

This construction depoliticises sustainable development that appears as not about any particular kind of economy. Implicitly, the sense of the deeper transhistorical core of different stages and forms of economy is invoked. Thus, the power relations and historical specificity of the presently dominant capitalist mode of production are taken out of the account, and 'economic and social development' is ideologically neutralised. Furthermore, by smuggling in the concept of a benign economic necessity, the Brundtland Report laid the groundwork for the next move. The second step achieved through Agenda 21 and the Rio Declaration in 1992, was the articulation of the economic more clearly with the market. This creates a chain of signification, whereby the existing and viable way of life (and the way forward to sustainable development) is the market. Presented as technological adjustment and innovation, the reconciliation of ecological issues with economic growth is at the heart of this strategy.

Agenda 21 is the action plan for sustainable development and it privileges economic and industrial growth, linking them to the notion of prosperity for all.

> Business and industry, including transnational corporations, play a crucial role in the social and economic development of a country. A stable policy regime enables and encourages business and industry to operate responsibly and efficiently and to implement longer-term policies. Increasing prosperity, a major goal of the development process, is contributed primarily by the activities of

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> business and industry. (United Nations Conference on Environment and Development [UNCED], 1992a)

In stark contrast to earlier survivalist concerns, economic growth and industrial development are regarded as central to a prosperous society. This utopian vision of a productive society builds on the first principle of the Rio Declaration: '[h]uman beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature' (UNCED, 1992b).

Picking up on the ecosophy premise of harmonious human–nature relations, the Rio Declaration strategically positions itself as being in sync with the deep-green movement. Principle 11 of the Rio Declaration underscores a neoliberal emphasis on the opening up of trade barriers internationally in the pursuit of economic growth and the mutual benefit of the environment:

> States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. (UNCED, 1992b)

This emphasis on a reconciliation of environmental and economic imperatives was clearly articulated in the following objectives in Agenda 21. They are worth quoting at length as they underscore the strong neoliberal emphasis on the centrality of the market in the pursuit of sustainable development.

> [T]he challenge is to achieve significant progress in the years ahead in meeting three fundamental objectives:
>
> (a) 'To incorporate environmental costs in the decisions of producers and consumers, to reverse the tendency to treat the environment as a 'free good' and to pass these costs on to other parts of society, other countries, or to future generations;
>
> (b) To move more fully towards integration of social and environmental costs into economic activities, so that prices will appropriately reflect the relative scarcity and total value of resources and contribute towards the prevention of environmental degradation;
>
> (c) To include, wherever appropriate, the use of market principles in the framing of economic instruments and policies to pursue sustainable development. (UNCED, 1992a)

The above extract from Agenda 21 clearly signifies the privileging of market principles in sustainable development. There is recognition (in part 'a') that the environment is not the 'free' good that has previously been assumed, but rather seen as coming at a cost, both between and within countries and across generations. Thus, there is reference to the idea of scarcity of resources (part 'b') that are used at the cost of future generations that will not be able to sustain life as we know it (based on market economy – part 'c') into the future. While this is seen to protect environmental interests and thus garner support from the greens, i.e. conservation and wise use of natural resources is premised as an important aspect of sustainable development, it also does so while holding market society up as the best way to achieve this. A nod in the direction of equitable distribution of resources satisfies those concerned with poverty and social inequality between and within countries. However, again, this is promoted as being best achieved through the use of market principles.

Within the sustainable development discourse of Agenda 21, the environment is something to be 'managed', nature becomes 'commodified' and tradable. Allocation of nature's benefits and burdens such as pollution is seen to be optimally achieved through market instruments. Social goals subsequently become subsumed 'within a project of globalised eco-economic management (McAfee, 2012, p. 25). This capitalocentric vision of sustainable development inflects the social and environmental agenda with a neoliberal flavour (Jessop, 2012). Hence the environmental aspect becomes infused with the language of neoliberal economics and strong anthropocentric leanings.

Furthermore, in chapter two of Agenda 21, the process of market expansion is seen as a necessary facet of a dynamic and yet stable global economy. This is illustrated in the following passage from Agenda 21:

> The development process will not gather momentum if the global economy lacks dynamism and stability and is beset with uncertainties. Neither will it gather momentum if the developing

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> countries are weighted down by external indebtedness, if development finance is inadequate, if barriers restrict access to markets and if commodity prices and the terms of trade of developing countries remain depressed. (UNCED, 1992a)

The triple interdependence between the market economy, social equity and environmental integrity is constructed as the answer to development woes in the so called 'developing world'.

Once the natural environment is defined in terms of neoliberal discourse it becomes subject to its economic premises. Diana Liverman discusses this neoliberal assumption that nature is a service and a commodity that can be traded on the global market as 'a massive transformation of the human–environment landscape' (2004, p. 734). This transformation marks a winning in the war of position and the ascendency of a global hegemonic positioning on the environment, social development and economy. Markets are regarded as neutral mechanisms that will ensure both environmental protection and the allocation of social goods.

There is insufficient space in this article to discuss the documents that resulted from the Rio+10 and the Rio+20 conferences. At this point, however, we would like to indicate that the neoliberalisation theme continued, but with concessions to concerns that the grand project of sustainability has not been realised. The push became more strongly towards the construction of a green economy and a benign environmental 'management' approach. The management approach signals green technology and market trading schemes in a commoditised nature. Jessop (2012) calls the focus on a green economy as a solution to environmental destruction and social poverty the 'Green New Deal' (GND). He argues that if the GND is going to avoid colonisation by 'zombie' neoliberalism it will need to critique the implicit economic growth model.

Conclusion: a red-green critique

As has been indicated above, environmentalism is not a singular movement, but consists of wide-ranging ecological and social concerns. Rather than operating on a uniform social platform, it is comprised of discordant and diverse groups who have been engaged in a war of position on the intersection between environmental and development concerns. Within the anti-productivist green movement of the developed countries that grew rapidly from the late 1960s as one of the 'new social movements', capitalist growth is linked with the declining quality of the material lifeworld. However, sustainable development neutralised this critique and has emerged triumphant in reframing this relationship between economy and ecology as equivalential and mutually interdependent dimensions. Furthermore, through depoliticising the capitalist economic formation and normalising the purely individualistic logic that it is based on, sustainable development discourse effectively gives capitalism a clean slate. In doing so it not only ignores the destructive underpinnings of capitalism's economic rendering of nature and people, but positions free market capitalism as central to the protection of nature and the eradication of poverty.

In contrast, a range of thinkers and movements that broadly could be labelled as red-green political ecologists, implicate neoliberal capitalism in the process of planetary destruction, and in the deepening precarity, instability and inequality of everyday life (e.g. Pepper, 1993, 1996; Lipietz, 1995, 2013; Neilson, 2013). They turn the sustainability discourse back towards a radical conception that can be schematically presented as follows. Rather than an equivalential relationship between ecology and economy, ecology is treated as necessarily prior to economy. That is, the continuation of human civilisation is premised on a mode of economic regulation beyond neoliberal capitalism that is, first and foremost, compatible with the stable reproduction of the natural ecology. In addition, rather than having the economic and ecological dimensions of sustainability discourse simultaneously and positively grounded in the capacity of capitalism, an alternative discursive configuration is presented. That is, the economic basis of a viable ecologically sustainable society is simultaneously but negatively connected with capitalism. Not only does capitalism imply the respective destruction of society independently of a compounding ecological effect, but in the contemporary era, the restabilisation of capitalism as a viable growth model depends on the escalating destruction of the planet that is already ecologically over-reached (see Neilson, 2013).

However, such a critical reversal of the neoliberalised sustainability discursive formation remains politically marginal while it is not attached more clearly to a coherent alternative project. Though ideologically diverse and not consolidating, red green political ecologists are engaged in

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trying to construct different elements of an alternative model of development that can directly respond to the deepening ecological crisis. Jessop, a longstanding member of the regulation school of political economy, comes close to articulating the idea that such elements need to cohere as an overall project which 'must move beyond categories rooted in the logic of profit-oriented, market-mediated accumulation to encompass political ecology (and its critique) as an integral element of an alternative economic imaginary' (2012, p. 22; see also Lipietz, 2013). On a similar track, Pepper (1998) argues that the principles of a genuinely sustainable 'green politics' must abolish the aim of economic 'growth for private profit' (p. 6) and must produce a '*different* technology from that of the capitalist mode of production' 1993, p. 144, original emphasis). Countering the contemporary dominance of global scale capitalist production – beyond a third sector of local craft production, exchange, and energy production – requires the promotion of an alternative industrial paradigm that can facilitate local production of variety (Neilson, 2013). Though going beyond the distributional focus of some eco-socialist discourse, this discussion of an alternative technology has not solidified in itself or as part of the conception of an alternative model of development. Neilson argues that fundamental to the conceptualisation of an alternative model of development is the development of a template of innovative institutional frameworks of socialised global knowledge and cosmopolitan democracy, so that locally deployed technologies and modes of regulation compatible with ecological sustainability can be achieved in practice.

Radical ecological sustainability discourse is marginalised from mainstream discourse which is subordinated to neoliberal ideology. While radical ecological discourse does not consolidate around an alternative model of sustainable development, then the possibility of widespread dissemination of an alternative discursive formation is also highly unlikely. In such an alternative discourse, a global agreement on ecological sustainability needs to be the overriding priority that would set the socially progressive limits and possibilities of an alternative economic model of development.

In conclusion, the potential of EfSD to engage students in truly critical reflection and the construction of an alternative discursive formation and model of development is constrained while its neoliberalisation remains unchallenged. As Robottom and Hart (1993) have argued, the behaviourist paradigm dominant in EfSD prefigures a particular worldview, including moral rules and approved behaviours. As we have attempted to demonstrate, this worldview is neoliberal and acts as a control on those who subscribe to it. Environmental problems are complex and multifaceted, and a truly transformative approach requires critical reflection on taken-for-granted worldviews informing mainstream approaches to sustainable development popularised through the Rio process.

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Article Four:
The transnational state, neoliberalism and environmental education policy: A New Zealand case study

This article examines the role of the United Nations in disseminating the sustainable development vision to national policy contexts. The UN is a transnational state (TNS) body that administers neoliberalised sustainable development discourse (SDD) which has become hegemonic in policy and educational settings. First, I examine the way the UN, as a transnational interstate apparatus, has produced and integrated dominant neoliberalised SD into global agreements. Second, I analyse the ways this has been taken up in New Zealand's specific institutional settings, including educational policy broadly speaking and environmental education policy. Interestingly, the analysis indicates that this is not a top-down approach with a simple reproduction of UN defined SDD in national policy contexts. Rather, the reworking of SDD has involved complex transversal manoeuvres as the ideologies are articulated with the bodies within the national context. This paper ultimately demonstrates that New Zealand policy settings, including environmental education policy, have become directly subordinated to the process of neoliberalisation by the TNS.

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THE TRANSNATIONAL STATE, NEOLIBERALISM AND ENVIRONMENTAL EDUCATION POLICY: A NEW ZEALAND CASE STUDY

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ABSTRACT. The neoliberalisation of environmental policy (including environmental education) is complex and multifaceted and one in which the transnational state (TNS) is central. In order to address this claim, the first part of this paper explains the transnational state and in particular the role of the UN in redefining sustainable development and environmental education. I show how underpinning this process is the nation states "transmission belt" function in which global policy directives are transmitted to the local level. This is achieved through a discussion of the dissemination of neoliberalized sustainable development policy in New Zealand policy contexts. I demonstrate this process by identifying policy formation located at different points in this process, and then via an analysis of its specific form in the context of EE in New Zealand educational settings. The paper then considers the neoliberal substance of this sustainable development led EE discourse in New Zealand which is linked both with its anthropocentric orientation, and its "problem solving," soft-green managerialist/technological approach to the environment.

Keywords: neoliberalism; environmental education; transnational state; human-nature relations; ideology; curriculum policy

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Introduction

Sustainable development (SD) originated in third world politics and is based on radical deep green and red-green (Marxist) environmental thought (Carruthers, 2005; Tulloch & Neilson, 2014). However, SD has been wrenched from its location in radical anti-globalization third world politics and redefined through a series of international summits as part of a broader developmental agenda. It promises to address a multitude of problems including environmental degradation, uneven development, poverty, disempowerment of indigenous peoples, and war. While there are diverse interpretations of SD, the dominant reading is that which has been shaped by *Agenda 21* (United Nations Conference on Environment and Development (UNCED), 1992). *Agenda 21* was the document that arose from the 1992 Rio de Janeiro (UNCED), 1992) conference (also called the Earth Summit). Paradoxically, the economic agenda underpinning *Agenda 21* is based on the expansion of global markets and insists on continued economic growth (Doyle, 1998). The integration of environmental concerns with economic and social aspects has been critiqued at various levels, not least of which is the push for redesigning the economy in line with neoliberal logic and free market globalization (Tulloch & Neilson, 2014).

The United Nations (UN) has been particularly instrumental in the development of Sustainable Development Discourse (SDD), and its dissemination in policy at various levels from global through to local. In its current form, SDD stresses the integration of social and economic global capitalist development goals with environmental concerns. Sustainable development discourse (SDD) is now a neoliberalized explanatory framework by which all dominant forms of environmental discourse are produced and reproduced (Dryzek, 2005). It applies neoliberal principles of privatization, commodification and marketization to the environment, broadly conceived in anthropocentric terms as natural resources and ecosystem services.

The anti-capitalist agenda and "limits-to-growth" logic of earlier SD proponents originating in third world politics of the 1970s has been pushed to the margins by this pro-neoliberal reworking of the concept. The primary focus is now on decontextualized behaviors and values of individuals and social groups. People's values and behaviors are, of course, important in the transition to a genuinely sustainable world. This is why environmental education (EE) and education for sustainability (EfS) both stress citizenship education involving values development and advocate for intergenerational behavioral change. However, this paper argues that SDD fails to address two important points: a) the historical materialist dialectic between the capitalist economy and the formation of particular behavioral and value orientations and b) an analysis of the genesis of environmental/social and economic

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crises as lying within globalized neoliberal capitalism itself. Conversely, the neoliberal goals of economic growth and open markets have been promoted since the Rio Summit in 1992 as the *solution to* rather than the *cause of* our environmental crisis (Tulloch & Neilson, 2014).

It should be evident from the above discussion that an analysis of local EE policy needs to be situated within a critical understanding of its embeddedness in wider global processes of capitalist expansion. Thus, the neo-Gramscian perspective of this paper considers the emergence of SDD in relation to a historically specific configuration of the capitalism-state-society complex (Cox, 1981). The current age of globalization of capital is integrally connected with the transnationalization of the state (Robinson, 2001). Accordingly, the state is not a form of immutable geo-political dynamics or in Weberian terms a "relatively independent national actor driven by geo-political competition with other states" (Robinson, 2001, p. 190). Rather, boundaries are transcended as a new economic order of global rather than national circuits of accumulation emerges. The structure of the state has altered alongside the economic changes and is linked with the rise of transnational state (TNS) bureaucracies that seek to supersede and incorporate the national state and redefine the nature of the social order.

The dissemination of neoliberalized SDD from (in this case) the UN to policy formation in New Zealand is not a simple reproduction (although it can appear in some instances to uplift many ideas that appear almost verbatim). Nonetheless, the way in which the neoliberal ideas/policy mechanisms are articulated means that each nation has its own version. As the global discourse goes through this process it comes in contact with a local context and discourses. The relay of ideas involves engagement with New Zealand as a local context resulting in a particular New Zealand variety.

This process can be understood more clearly through reference to Brenner, Peck and Theodore's (2010) theory of "variegated neoliberalizations." Brenner, Peck, & Theodore explain that the essence of this neoliberalization varies between policy settings so that its uptake has been uneven and variegated. "This market-disciplinary logic may take different forms in different territories, but once neoliberalism is consolidated as the world order, its constraining effect on national institutions, politics and ideologies is thought to be effectively all-pervasive" (Brenner, Peck, & Theodore, 2010, p. 192). Neoliberal discourses such as SDD are taken up at national level variously leading to what has been termed "variegated neoliberalization" (Brenner, Peck, & Theodore, 2010).

As this paper demonstrates, this process of relay of ideas is not seamless and involves mutations and disruptions of previous SD thought but can occur in such a way that it generates a consensus. Thus, neoliberal discourses such as SDD are a kind of prototype that move from their embryonic form within

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global institutions such as the UN, to co-evolve after mingling with policy in national contexts to mutate and take on a specific form (Brenner, Peck, & Theodore, 2010). While retaining the focus on the logic of the market and commodification, there are nonetheless variations in its uptake to produce "hybridized institutional landscapes" (Brenner, Peck, & Theodore, 2010, p. 189). As this case study of Environmental and EE policy demonstrates, the particular manifestation of SDD within New Zealand policy at national and local level is unique. It is the result of "co-evolutionary dynamics" and not a simple reproduction of neoliberal prototype.

The role of the TNS is in late-stage neoliberalized capitalist globalization in opening up global markets by entrenching neoliberal policy within local contexts is often neglected, especially as most analysis of neoliberalism regard it as entailing a rolling back of state intervention (Panitch, 1994). However, as Marcia McKenzie states, the "underlying assumptions embedded within global UN policy, including educational policy" deserve more academic analysis (McKenzie, 2012, p. 166). Not only do they play a role in "furthering global markets for economic activity," but UN global education policy reflects universal mandates for education that are totalizing and embedded in neoliberal logic (McKenzie, 2012, p. 166). This paper intends to address this lack of critique by examining the role and process of UN bodies (in particular the United Nations Sustainable Development Initiatives) in disseminating neoliberal global "common sense" approaches to environmentalism (greening of capitalism) and EE through an interstate 'transmission belt.

By analyzing the role of the TNS in disseminating neoliberal policy globally, I am attempting more than just an academic exercise. In making visible and analyzing the processes through which neoliberal logic infiltrates policy settings our responses can be guided accordingly. The possibilities or a more genuinely deep-green/red-green response to capitalist environmental and social fallout might move from the margins.

The purpose of this paper, then, is to trace the process whereby various organizations of the UN have administered SDD, which has become hegemonic in policy and educational settings. This paper will illustrate how this process has played out in terms of broad environmental and EE policy has led to a universalizing theme in addressing environmental issues based on an underpinning shared set of "common-sense" meanings and values. In part, this SDD hegemony, which may be conceived of as an "opinion-moulding activity" has been achieved through its dissemination into national state institutions including educational policy and practice (Bieler & Morton, 2004, p. 87).

This process has redefined the parameters of both environmentalism and EE so that they fall within the gambit of neoliberal logic. This includes the commodification of nature, a focus on managing the environment broadly

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conceived as "natural resources," environmental problem solving through technological advancement within the current economic system and the promotion of economic growth.

In response to the broad political shift from environmentalism to SD, EE has become increasingly replaced by the term Education for Sustainability (EfS) or Education for Sustainable Development (EfSD). While some commentators in the EE field see this as a progressive evolutionary step, it is argued in this paper that this shift represents the marginalization of important radical insights about the capitalist economic order *itself* as the locus of the current environmental fallout. Crucially, within SDD, neoliberal capitalism becomes invisible and hence normalized.

Building on an earlier paper by Tulloch and Neilson (2014), this analysis argues that SDD is a hegemonic discourse serving to nullify previous radical environmental opposition to capitalist development. SDD, while appearing to champion the environmental cause, actually articulates it *with* a pro-economic capitalist growth agenda which is central to environmental degradation. The neo-liberal faith in markets and technology to produce *both* economic growth and ecological stability is articulated with notions of environmental protection, prosperity and individual and social well-being. This hegemonic and totalizing discourse is produced through neoliberal logic and promotes free markets and the expansion of global capitalism as the best possible solution to pre-defined issues of development (Tulloch & Neilson, 2014).

SDD has been so readily accepted because it signifies an "original meaning" for environmentalists – many of whom subscribe to a soft-green (or technological management) approach anyway. SDD also builds on the dominant post-Enlightenment Western trajectory of progress based on economic growth and technological development that even some early environmentalists subscribed to (Tulloch, 2013).

This paper argues that SDD on the surface appears to support insights from the deep-green and red-green camps, but crucially changes their frame of reference. Now, instead of a critiquing the logic of global expansion and free-market capitalism as the basis of environmental degradation, it is taken as the very solution. The deep green position, which fundamentally rejects anthropocentric philosophy and instead attempts to regard environmental issues from a biocentric worldview, is paradoxically articulated with a pro-capitalist agenda (see e.g. Selby, 2000). The social justice agenda of red-green thought combines an analysis of the political-economy with that of political-ecology. Previously radical environmental thought becomes compliant with the dominant Western neoliberal positioning on the environment, based as it is on human–nature separateness and instrumental market-based economic logic.

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The following section begins with a discussion of the TNS, in redesigning capitalism's institutional framework via a "model of development" (Neilson, 2012).

The Transnational State and the Role of the UN in Redefining Sustainable Development and Environmental Education

David Neilson (2012) suggests that: "The neoliberal model of development is the culminating framework within which the project of neoliberalization has been institutionalized as a global national nexus" (p. 11). Central to the neoliberal project has been a vast transformation involving ever-increasing unleashing of global capital in a manner that has resulted in reorganization of the state. The essence of this transformation has been neoliberal, with a deepening in the logic of free-markets, competition and profit. The transnational state serves the interests of the rising transnational capitalist class, whose neoliberal ideologies support the globalization of capital and are embedded in a set of political institutions (Robinson, 2001). This ideological ascendency initially crystallized in the Washington Consensus policies in the late 1980s. These polices sought to integrate national policies into regional and global economies through a set of institutions or "*transnational state cadre*" (Williams, 2001).

This configuration of supra-national political organizations described above makes up the transnational state (TNS). These institutions are both political (e.g. UN and the Organization of Economic Cooperation and Development (OECD) and economic (such as the World Bank (WB) and World Trade Organization WTO). Williams (2001) provides a more detailed list of TNS organizations; but the important point to note in this instance is that they form an emerging configuration that administers neoliberalized economic, social and environmental policies to national contexts (p. 167). Furthermore, they are "gradually supplanting national institutions in policy development and global management and administration of the global economy" (Williamson, 2001, p. 166). In this way national states cease to function independently and become transformed or incorporated into the TNS. Robinson (2001) argues that TNS bureaucracies are the embryonic political form of economic global restructuring.

UN organizations (e.g., UNESCO) and intergovernmental conferences (e.g., The United Nations Conference on Environment and Development (UNCED), 1992) have been central in this regard. The declarations and documents resulting from these global summits and organizations have been influential for governmental policy on environmental issues and environmental education (EE) both in New Zealand and internationally. Thus the UN is an important component of the specific capitalist state–society complex

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discussed here. The role of the UN in redefining SD is significant because it is integral to the formation of an inter-state ideological consensus, internalized in national policy and practice (Cox, 1981). The UN is the organization most responsible for making SD an internationally consensual concept, especially through the production of two documents: the *Brundtland Report* (World Commission on Environment and Development, 1987) and *Agenda 21*. The UN popularized the term "sustainable development" through the *Brundtland Report*, which defines it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). The orthodoxy of SD discourse has become so entrenched that it now informs governmental policy development nationally in New Zealand and globally and has arguably become the dominant platform for addressing environmental concerns (Dryzek, 2005).

In addition, education (both formal and informal) has been positioned by both the *Brundtland Report* and by *Agenda 21* documents as central to achieving SD. The dissemination of SDD into the education sector has been a significant part of its overall vision. The proposal for a global framework for environmental education has been heavily influenced by UN "institutional discourses" (Berryman & Sauve, 2013). These have come principally from the *Tbilisi Declaration*; *The Belgrade Charter – A Global Framework for Environmental Education*; and *Agenda 21*.

Since *Agenda 21* in particular the use of "the term "environmental education" has been increasingly supplanted by terms such as "education for sustainable development" (EfSD), "education for a sustainable future" (EfSF) or "education for sustainability" (EfS) (Bolstad, 2005). This is what Lucie Sauvé calls the "sustainable development/sustainability current" and she argues that it rose to a prominence in the mid-80s and has gradually become the dominant paradigm in environmental education.

Chapter 36 of Agenda 21 states that: "Education is critical for promoting sustainable development and improving the capacity of the people to address environmental and development issues … critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development" (United Nations Conference on Environment and Development, 1992, p. 2). Thus the formal establishment of the concept of Education for Sustainable Development (ESD) at the 1992 Rio de Janeiro United Nations Conference on Environment and Development (UNCED), has given governments internationally, and in New Zealand, a base from which to launch their own curriculum initiatives (UNCED, 1992).

Dissemination of a pro-business, large scale corporate neoliberalized version of SD has not always proceeded smoothly however. Richard Kahn (2008) detailed how at the 2002 Earth Summit held in Johannesburg South Africa (The World Summit for Sustainable Development (WSSD)) definite

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divisions and resistance to the dominant SDD emerged. Central to the tension was the refusal of the WSSD (or W$$D as it was dubbed by critics) to ratify "the holistic, pointedly socialist in spirit, and non-anthropocentric Earth Charter educational framework" (Kahn, 2008, p. 7). The ideological struggle was principally between "large-scale corporate and governmental technocrats and the more grass-roots based theorists, activists and educators proper" (Kahn, 2008, p. 7). Instead of the ratification of the Earth Charter, EfS was promoted as the favored form of inter-disciplinary education to be integrated into all levels of schooling (Kahn, 2008). This was followed by the United Nations declaration of a Decade of Education for Sustainable Development (DESD) during 2005–2014.

This section has discussed the UN as a transnational interstate apparatus that has been central in producing and integrating dominant neoliberalized SDD into global agreements. In the next part of this paper the way in which this became disseminated through the interstate transmission belt to the New Zealand environmental and EE policy context will be discussed.

The New Zealand Context

As discussed above, the dominant UN discourse on SD has been articulated with ideologies circulating in local policy settings in New Zealand. This section will outline some of the key developments in New Zealand's government policy on SD that have been a result of this process. The way this has occurred is not simply a top-down one-way reproduction of SDD in national and local contexts. Neoliberalization of environmental policy settings in New Zealand is a result of a reworking of New Zealand's specific institutional landscape (Brenner, Peck, & Theodore, 2010). The articulation of SDD with discourses already in situ – that is a unique and specific national policy setting – is at the heart of variegated neoliberalization (Brenner, Peck, & Theodore, 2010). New Zealand's unique environmental, socio-political and economic context influences the ways in which the transmission process has taken (and continues to take) place. Thus before going into any detail regarding the transmission of SDD into New Zealand policy settings it is important to provide a brief contextual background.

Significant environmental degradation is a concern for New Zealand. Despite the power of the place-based myth of New Zealand as "clean and green," the reality is somewhat different (Bell, 1997; Ateljevic & Doorne, 2002). The process of "settling New Zealand" by early European colonists, including the forced alienation of Maori from their land, and has resulted over time in ecological degradation of its exceptional endemism and a loss of biodiversity. Over-exploitation of natural resources, over-harvesting of marine life and habitat destruction caused by the introduction of alien species

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and the conversion of primary vegetation to farm land has precipitated ecological degradation. New Zealand's remarkable array of ecosystems, including distinctive evergreen forests, wetlands, grasslands and marine environments are now under threat (Eames & Barker, 2011).

Much environmental degradation recorded in the last thirty years has coincided with the neoliberalization of economic and social policy. Since 1984 and the Labour Government return to power after nine years in opposition, New Zealand moved from a Keynesian welfare state to a neoliberal post-welfare state. This led to the restructuring of the welfare state, economy and public sector in line with neoliberal ideology. With its focus on privatization, deregulation, freeing trade barriers and economic growth, it is unsurprising that there have been associated increases in social inequality and environmental degradation (Boston, 2014).

The neoliberalization of New Zealand economic and social policy has been theorized in academic literature (see e.g. Boston, 2014; Cooke, Hill, Baskett, & Irwin, 2015; Hackell, 2013; Jesson, 1999; Olssen & Peters, 2005; Peters, 2011), and it is generally accepted that the neoliberal ideology informs its national policy settings. Neoliberalism in New Zealand is inextricably connected with globally defined imperatives of capitalist development and unleashing of global capital. SDD serves well as an ideological Trojan horse in this regard, concealing the overriding neoliberal economic growth agenda through articulating it with liberal-left aspirations of social equality and environmental protection.

The Dissemination of Neoliberalized Sustainable Development Policy in New Zealand

New Zealand let the SDD Trojan horse willingly through its gates. However, the process through which it appeared in divergent policy settings is an interesting study in way that the transnational transmission belt works. Brenner et al. (2010) refer to this as "transversal manoeuvres across divergent institutional sites." So we find SDD appearing in UN (at a global level) and at the same time in the policy of various New Zealand government bodies, and NGOs and government watchdog sites. It is not a simple downward unidirectional transferral. The focus of this section is on SDD's institutionalization in mainstream New Zealand government policy. This section demonstrates the reworking of the New Zealand environmental institutional landscape as a result of UN neoliberalization processes. This has involved cross-over and co-evolution of SDD across a global and national context.

Though not without its struggles, in the last three decades a dominant discursive formation has emerged that favors the "weak" version of sustainability ("business as usual" in a greener and more eco-friendly) way has taken

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shape in New Zealand. Principally this has taken the form of government bodies adopting UN discourse on SD to establish links between social and environmental concerns and the economy. Bebbington, Higgins, & Frame (2009) found that:

> The emphasis is on fairly traditional responses to a fluctuating external environment (efficiency, technological innovation, techno-scientific management, procedural integration and coordinated management). Couched within economic utilitarianism, current articulations ... present little critical challenge and thus continue to normalize many unsustainable practices (Bebbington, Higgins, & Frame, 2009, p. 7).

Furthermore, they say that dialogue about the priorities in NZ's economic, environmental, social and cultural sphere are controlled by "relatively small group of elites" rather than the public (Bebbington, Higgins, & Frame, 2009, p. 6).

Agenda 21 has been particularly influential in environmental policies and legislation in NZ since the 1990s (UNCED, 1992). Agenda 21 clearly stated that environmental concerns needed to be integrated with development. Indeed it went further to signify a particular kind of economic development:

> (c) To include, wherever appropriate, the use of market principles in the framing of economic instruments and policies to pursue sustainable development (The United Nations Conference on Environment and Development (UNCED), 1992).

Prompted by *Agenda 21*, changes to New Zealand's environmental policies and legislation in the 1990s and beyond have come primarily from the New Zealand Government, particular the Ministry for the Environment (MfE). Other central participants have included the Parliamentary Commissioner for the Environment (PCE) an independent environmental watchdog. The NZ Business Round Table has also "attempted to assert the normative legacy of economy-centered understandings" of sustainability (Bebbington, Higgins, & Frame, 2009, p. 7).

Below is a timeline of some of the key developments in the uptake of SDD in New Zealand policy frameworks. It demonstrates the way in which SDD, through the interstate transmission belt function, became a core part of environmental and EE policy narrative in New Zealand. It also indicates the profound economic utilitarianism that has been the basis of SDD in New Zealand policy settings.

Even before *Agenda 21* the New Zealand government's was sitting up and taking notice of SDD. The New Zealand government's initial commitment to the SDD was established in ground-breaking legislation in the early 1990s

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(The Resource Management Act, 1991). SD became a central feature of the Resource Management Act (RMA) in 1991:

> In this Act, ***sustainable management*** means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety (New Zealand Government, 1991).

This was followed in September 1995 by the release of released *Environment 2010 Strategy* (E2010) by the Ministry for the Environment (MfE). The E2010 is a statement of environmental priorities and strategies, the first to be developed by a New Zealand government. It was designed to "complement the Government's economic growth strategy, released in June 1993 as *Path to 2010*" (McGuiness Institute, n.d.) The coupling of environmental and economic growth concerns is clearly indicated.

In 1997, the New Zealand government was among other UN member states in agreeing at a Special Session of the UN General Assembly (UN, 1997) to introduce a National Sustainable Development Strategy (NSDS) by 2002. However, by 2003 no such NSDS had been prepared however; and in 2003 the MfE instead released the Sustainable Development Plan of Action. Successive Labour governments introduced legislative and normative initiatives including a SD strategy for New Zealand and the Local Government Act (2002) which embedded SD in local government legislation (Bebbington et al., 2009). Contributors to the SD strategy included Ministry of Economic Development, Treasury, Ministry of Foreign Affairs and Trade, Ministry for the Environment and Ministry of Social Development.

In 2000 Cabinet had formally adopted the Brundtland Report SD definition, acknowledging that this involves the integration of social, environmental and economic dimensions (McGuiness Institute, n.d.).

Increases in measuring sustainable outcomes are another indicator of the increasing institutionalization of SDD in government policy. In August 2002 a report was released by *Statistics New Zealand* entitled "Monitoring Progress Towards a Sustainable New Zealand" (Statistics New Zealand, 2002). Themes in this report included both "environment and ecosystem resilience" and "economic growth and innovation" (p. 12). A focus on balance was evident in the question "Is the economy innovative and growing … and in balance with the environment"? (p. 10). The assumption of economic growth as an unqualified good was coupled with "innovation." This is a hallmark of neoliberalized sustainable development: the assumption being that environmental issues can be resolved both by and through technological innovation, new markets and economic growth.

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Thus, consecutive governments in New Zealand have, since the early 1990s, signaled a clear commitment to SD. They have also expressed a desire to achieving equilibrium between the three pillars, although the premising of the economic pillar is evident. Prime Minister Helen Clark even enthusiastically endorsed another pillar, that of "nationhood" in her 2007 opening speech:

> I believe New Zealand can aim to be the first nation to be truly sustainable across the four pillars of the economy, society, the environment, and nationhood. I believe we can aspire to be carbon neutral in our economy and way of life ... I do believe New Zealanders value our country's clean and green, fair and inclusive status, and our first world living standards (Helen Clark, 2007).

In signifying a particularly unique national response to the SD imperative (framed in the neoliberal language of commodification), Clark was evoking nationhood and national identity (way of life). Her speech may have rallied her supporters and been accepted by centre left, but it was amiss in addressing how New Zealand's "nationhood" is now inextricably tied to the global capitalist imperative and what constraints this might put on such a vision. Conversely, links to the global economy were seen by Helen Clark as central to any move toward a sustainable nation (Clark, 2007). Any reference to the intrinsic value of a healthy environment was notably absent from this speech. Instead, the extrinsic value of a carbon-neutral economy to New Zealand was pushed home. New Zealand's relative isolation from the rest of the world has often been a vulnerable point and Clark had no hesitation in exploiting it. She stated that:

> New Zealand's future is dependent on long term sustainable strategies for our economy, society, environment, culture and way of life... In our high value markets in Europe, we face increasing pressure on our trade and tourism, from competitors who are all too ready to use against us the distance our goods must travel to market, and the distance tourists must travel to us. By lowering our carbon footprint, we strengthen our position against that kind of protectionism – and the government is working to lower that footprint in many ways (Helen Clark, 2007).

In the above speech, the neoliberal language of "markets" and "competition between nations" was articulated with a sense of "nationhood;" ensuring New Zealanders "buy-in" to the discourse. This has been central to New Zealand political discourse and the promulgation of certain cultural values such as fairness, equality, social mobility, love of the great outdoors, conservation and

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access to public goods (including beaches, national parks) (Coyle & Fairweather, 2005).

In 2008 *Statistics New Zealand* published "Framework for Measuring Sustainable Development" (Statistics New Zealand, 2008); and in 2011 "Key Findings on New Zealand's Progress Using a Sustainable Development Approach: 2010" (Statistics New Zealand, 2010). The dominant language of SDD was used in this report:

> Meeting needs of current and future generations, while taking into account considerations of fairness and limits of the environment, is a complex challenge. To represent this complexity three interrelated target dimensions are used. These are: environmental responsibility, economic efficiency, and social cohesion (Statistics New Zealand, 2010, p. 21).

This increased monitoring of SD indicators, revealed some important trends such as an increase in income inequality and unemployment. It also indicated an increase in total greenhouse gas emissions. Other environmental indicators included an increase in nitrogen in rivers, and decline in distribution of selected native species. On the other hand there was a positive trend in labor productivity and assets and infrastructure. Clearly the desirable "balancing act" referred to by Statistics New Zealand was not being achieved. The economy continued to grow regardless of the social and environmental fallout. Despite referring to the importance of "ecological limits," it would appear Statistics New Zealand was unable to present a report indicating that New Zealand was living within them.

This privileging of the economy has been enduring in governmental policy on sustainability in New Zealand. It was a strong focus of the BlueGreen Report released by the National Government in May 2006 which among other principles indicated that: "economic growth and improving the environment can and must go hand in hand." This principle was repeated in the 2012 version of this report along with signaling the centrality of the environment to "our international reputation, our primary sector, our growing tourism market, and our economy" (The New Zealand National Party, 2012). In addition it is noted in the principles that science is of high import to social decision making around environmental issues and that incentives are important when asking people to respond to change. The commitment to Enlightenment values of progress, growth, individualism and the neoliberal emphasis on the self-interested individual are evident (The New Zealand National Party, 2012).

In 2015 the UN General Assembly formally accepted 17 Sustainable Development Goals, which have in turn been endorsed by the current National Government. "New Zealand welcomes the ambition contained in the Sustainable Development Goals. And we support the substance of the Goals"

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(National Party, n.d.). Among the goals of ending poverty and hunger and promoting equitable quality education and gender equality was the ubiquitous goal of economic growth. This includes the targets of: "Sustain per capita economic growth" and "[a]chieve higher levels of economic productivity through diversification, technological upgrading and innovation." Of interest was the goal of "endeavor to decouple economic growth from environmental degradation." While other goals are more forthright, the meekness of "endeavor" indicates that perhaps, it is not essential that we do so, only desirable. The very possibility of being able to decouple environmental degradation from economic growth under globalised capitalist production is, of course, not addressed.

The above section has demonstrated that SDD in New Zealand environmental policy, broadly speaking, has a definite neoliberal substance. This is primarily framed in terms of the articulation of economic growth and free markets with technology, innovation, entrepreneurial diversification and resource management. This decidedly anthropocentric orientation to the environment has become institutionalized within New Zealand policy settings.

The question remains as to the uptake of SDD in education policy. Developments here have reflected the broader policy contexts, with EE policy statements lifting quotes directly from both UN sources and the MfE. In 2004 the Parliamentary Commissioner for the Environment (PCE) claimed that environmental education (EE) in New Zealand was demonstrating, "growing pains of a movement stretching to embody a huge vision – a vision that environmental education has always shown some characteristics of, but which it now needs to manifest more proactively" (PCE, 2004, p. 39). This explicit endorsement of education for sustainability (EfS) was published just a year before the United Nations Decade of Education for Sustainable Development was proclaimed by the UN General Assembly following the Johannesburg Summit. This was to be a ten-year period beginning 1 January 2005.

We are now at the end of this decade, and the transition from EE to EfS in New Zealand predicted by the PCE has not fully materialized, but is rather piecemeal and elusive. The word "sustainability" is liberally referred to in the most recent curriculum document, particularly at the front end which outlines the normative underpinnings of the curriculum (MoE, 2007). Yet neither EE nor EfS are a separate learning area within this document and many commentators have taken issue with the perceived lack of support from the government (see e.g. Chapman, 2011). Despite this, the language of "sustainability" and "sustainable development" has become integrated into curriculum mandates.

The language of sustainability became institutionalized in New Zealand education policy primarily from the 1990s onward. In response to UN global initiatives which called for environmental education in formal and non-

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formal educational sectors, the New Zealand Natural Heritage Foundation organized and international environmental conference in 1991 entitled *Our Common Future: The Way Forward.* This is of course a rehearsal of the World Commission on Environment and Development report entitled "Our Common Future," which elaborated a global long-term strategy for sustainable development up to the year 2000 and beyond (Schubert & Lang, 2005).

This upsurge in global and national push for environmental education also came from the Ministry for the Environment (MfE) who launched *Learning to Care for Our Environment: A National Strategy for Environmental Education* in 1998 (Ministry for the Environment, 1998). This was followed by the publication of Guidelines *for Environmental Education in New Zealand Schools* (New Zealand Ministry of Education, 1999).

A national research project on Environmental Education policy and practice in New Zealand schools undertaken by The New Zealand Council for Educational Research and the University of Waikato between 2002–2003 investigated the characteristics of EE policy and practice in New Zealand (Bolstad, Cowie, & Eames, 2004) This report suggested that EE policy in New Zealand had undergone a re-orientation toward EfS in response to international drivers such as the UN, and in particular the 1992 *Rio Summit.* "International summits and declarations, as well as New Zealand's own environmental management policies and obligations to the Treaty of Waitangi, have influenced environmental education policy developments in New Zealand" (Bolstad, Cowie, & Eames, p. 25). This report suggested that in New Zealand, cross governmental connections have been important in strategic leadership to orient New Zealand EE toward EfS: in particular the Ministry for the Environment, the Ministry of Education and the Department of Conservation. Connections across different national policy sectors illustrate the "pathways of neoliberalization" discussed by Brenner, Peck, & Theodore (2010).

According to Bolstad, Cowie, & Eames (2004), despite policy orientation toward EfS, in practice EE had largely remained as the discourse within schools. They also suggested that EE had been pushed to the margins in formal schooling because of its non-mandatory status. This report highlighted the significance of enthusiastic teachers, NGOs and the highly successful non-government funded program Enviroschools in developing whole-school, action-based, issues oriented EE pedagogy.

An update of this report was published in 2015 by the NZCER (Bolstad, Cowie, & Hipkins, 2015). This report referred to the range of interest groups involved in EE/EfS policy as "stakeholders," and called for "a more coordinated central policy framework, aligning across MoE, MfE, and DoC priorities to support and give direction to EE/EfS" (Bolstad, Cowie, & Hipkins, 2015, p. 13). This largely acritical approach takes for granted the

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reorientation of EE toward EfS in New Zealand policy settings, being largely supportive. It indicates the level of institutionalization and acceptance of SDD in EE policy settings in New Zealand.

Case Study: New Zealand Environmental Education Policy

This paper now turns to an analysis of environmental education policy in New Zealand, focusing on two dominant policy documents: *Guidelines for Environmental Education in New Zealand Schools* (Ministry of Education, 1999) and *The New Zealand Curriculum* (Ministry of Education, 2007). I will be focusing particularly on the "dense entanglements, interdependencies and interconnections" between the UN as a transnational interstate apparatus disseminating neoliberal logic, and the New Zealand national policy context (Brenner, Peck, & Theodore, 2010, p. 217). This illustrates how the neoliberalization process is variegated in character, resulting in institutional divergence across geographical settings, yet still retains a unitary global neoliberal blueprint for development (Brenner, Peck, & Theodore, 2010).

The reason for examining the *Guidelines* is that, despite being published fifteen years ago, it represents the most recent policy statement aiming to give direction to schools and teachers in integrating EE into their existing curriculum programs (Eames, Cowie, & Bolstad, 2008). While not making EE compulsory, the *Guidelines* provided examples of how it could be integrated across the seven learning areas covered in the then curriculum *The New Zealand Curriculum Framework* (Ministry of Education, 1993). When this curriculum was updated and replaced in 2007 with *The New Zealand Curriculum* (Ministry of Education, 2007), there was no corresponding development of the *Guidelines* which remained unchanged. Despite this, the *Guidelines* importance as a critical (albeit out of date) document for schools wishing to implement EE is significant.

Guidelines for Environmental Education in New Zealand Schools

The *Guidelines for Environmental Education in New Zealand Schools* was released in 1999 and provided direction for schools interested in integrating EE into the various learning areas in the school curriculum. It mirrors and endorses many of the policies coming from the UN, often making direct reference to them. For example there is almost verbatim recalling of the EE objectives as identified in the Tbilisi Declaration. These included a focus on the development of knowledge, skills, behavior, attitudes and values. It was paraphrased in the 1999 Ministry of Education (MOE) publication, *Guidelines for Environmental Education in New Zealand Schools:*

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> Environmental education is: a multidisciplinary approach that develops the knowledge, awareness, attitudes, values and skills that that will enable individuals and the community to contribute towards maintaining and improving the quality of the environment (MoE, 1999, p. 9).

The *Guidelines* demonstrates a clear link to *Agenda 21* and advocated for a "sustainable future" in the very first sentence of the foreword written by Howard Fancy (then Secretary for Education). In fact the focus on a "sustainable future" is connected explicitly to the Government's *Environmental 2010 Strategy*. This is quoted extensively in the introduction to the *Guidelines* where the overarching goal of sustainability was broken down into a vision including that of "sustainable development that meets the needs of present and future generations" (MoE, 1999). The *Guidelines* then go on to say, "[e]ducation for sustainability is a new focus for education. It is a way of helping individuals and societies to resolve fundamental social issues related to the current and future use of the world's resources" (MoE, 1999, p. 8).

The *Guidelines* informs us that people have "modified the land, introduced plants and animals, and utilized both renewable and finite resources" (p. 6) and argues that the maintenance and improvement of environmental quality is important. Environmental issues and problems are depicted within the *Guidelines* as the responsibility of individuals and groups. There is also reference to natural and physical resource limits and resource management. This is illustrative of a soft-green technicist/ management discourse on the environment that links so well to SDD and the dominant discursive formation in New Zealand policy settings referred to earlier by Bebbington, Higgins, & Frame (2009).

The *Guidelines* also identifies four key concepts underpinning EE including "interdependence," "biodiversity," "sustainability" and "personal and social responsibility." While acknowledging that sustainability is subject to multiple interpretations, the *Guidelines* argues that it is linked to the "concept of sustainable resource management" (MoE, 1999, p. 12). It also argues that it is "at the heart of the Resource Management Act, 1991. This Act … defines its purpose as promoting the sustainable management of natural and physical resources" (MoE, 1999, p. 12). Sustainability is depicted in terms of sustaining resources for future generations in order to meet their "reasonable demands" (although these are not clarified) (MoE, 1999, p. 12).

Here there is a definite level of discursive congruence between policy at the global level (between the UN and New Zealand policy) and the sub-national level (between environmental policy and educational policy sectors). Furthermore, the strong cultural mores evident in New Zealand for conserving

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the unique biodiversity and managing our resources link well with SDD's focus on future generations and environmental sustainability.

However, the critical shift from previous EE in NZ comes with a new focus on the economy. This is slipped into the discourse of EE through the concept "interdependence." Interdependence is a concept all ecologists and environmentalists will be familiar with. In ecological terms it focuses on the critical relationships between living things and the natural elements within ecosystems. This kind of "systems thinking" now becomes extended in the *Guidelines* and SDD to refer to how the environment, the social system and the economy are interrelated.

> [T]he environment is … a set of interrelated systems – the biophysical, social, economic, and political systems…. The biophysical system provides life-support systems for all life. A social system provides rules and structures that enable people to live together. An economic system provides ways of producing and exchanging goods (MoE, 1999, p. 11).

This largely apolitical version of the interdependence of biophysical, social and economic systems gives some indication of the anthropocentric view of nature that goes hand in hand with the naturalization of the economy. Nature is rendered invisible, except as a biophysical entity "out there" providing life support. The environment is natural, social and economic systems collapsed into one, and in this way the social and economic become "naturalized" and common sense. Nature, as environment, becomes something separate from us. The economy becomes "natural;" simply the way that humans produce and exchange goods.

The *Guidelines* also advocates v*alues education* in which students are to develop a sense of "shared values integral to New Zealand society." This constitutes a form of citizenship education closely linked to Governmental objectives: "environmental education provides an effective means of achieving the Government's goals for both education and the environment" (MoE, 1999, p. 6). This includes the Environment 2010 Strategy that the purpose of EE is to "encourage environmentally responsible behavior and informed participation in decision-making by promoting environmental education throughout the community" (p. 6). In addition lifestyle choices/actions of individuals depicted as central to environmental quality and people are regarded as central in solving environmental problems (p. 13). That individual and social decision making is seen as the primary impact on environmental quality and takes precedence over political and economic factors ignores the larger structural reality that late-stage capitalist production is at the root of current environmental degradation.

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The New Zealand Curriculum (NZC)

There is repeated reference to sustainability and sustainable development in the front end of the NZC. The Ministry of Education website Te Kete Ipurangi (TKI) supports this holistic positioning: "The future-focus theme of sustainability is evident throughout *The New Zealand Curriculum.* It is integral to the vision, principles, values, and key competencies, and provides relevant and authentic contexts across the eight learning areas" (MoE, 2015).

The NZC claims that it enables students "to successfully create, contribute to, and participate in a sustainable future" (MoE, 2007, p. 7). The vision is for students who are: "connected to the land and the environment," "members of communities" and "international citizens" (MoE, 2007, p. 8). They will "seize the opportunities offered by new knowledge and technologies to secure a sustainable social, cultural, economic, and environmental future for our country" (MoE, 2007, p. 8). The curriculum is here inciting particular citizen political subjectivities. This focus on New Zealand citizenship provides interesting insights: here is a citizen who is connected to environment and is able to engage effectively within communities, and yet also participate on an international level. In addition s/he will be able to use relevant knowledge and technologies to construct a sustainable social, environmental and economic future. The economic future is assumed, taken for granted and never questioned.

The "key competencies" provide considerable insights into the subject premised in the NZC, especially those of "managing self" and "participating and contributing." "Students who manage themselves are enterprising, resourceful, reliable and resilient" (MoE, 2007, p. 12). The individualism premised here is coupled with the neoliberal focus on "responsibility" and "communities" and tied in with future sustainability. "Students who participate and contribute in communities … understand the importance of balancing rights, roles and responsibilities and of contributing to the quality and sustainability of social, cultural, physical and economic environments" (MoE, 2007, p. 13). The particular citizen-subject version constructed here can be aligned with neoliberal rationality: the coupling of a morally responsible individual and an economic-rational actor. Through the regulationist characterization of neoliberalism, education becomes a mechanism that "redraws subjectivities" to create new "modes of citizenship" (Raco, 2005).

Further development of EfS is evident on TKI. The focus on individual responsibility is continued here where environmental stewardship is reduced to: "the choices and actions we can take to prevent, reduce, or change harmful activities to the environment" (MoE, 2015). Included is a model of EfS by Barry Law that promotes: "Attitudes and values that lead to create a nation of innovative and motivated people who think and act sustainably" (MoE,

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2015). This focus on "willingness to act" and the "correct" attitudes and values is at odds with a critical and transformative approach to EfS.

This section has demonstrated that recent EE policy development in New Zealand has been "path-dependent;" that is, it has been substantially dependent on the UN in its formation. In addition it is also the result of pathways formed between policy settings in New Zealand and the UN. It is a complex process with common underlying neoliberal parameters (Brenner, Peck, & Theodore, 2010, p. 219).

The Neoliberal Substance of SDD-led EE Discourse in New Zealand

Despite its unique New Zealand flavor, SDD led EE policy in New Zealand is set within the parameters of neoliberal logic. The dominant forms of knowledge privileged in the *Guidelines* may be regarded as anthropocentric and instrumentalist (soft-green managerialist) rather than deep-green or red-green. Through the soft-green lens, the non-human world is regarded as separate from the human world; one that can be "managed." This can lead to the casting of non-human nature as a "class of other beings that are available to be treated without ethical constraints as resources or commodities" (Plumwood, 2002, p. 12). The capitalist logic of exploitation extends to an "Otherwisation of nature" that has become common sense within curriculum policy statements and taken for granted. While spaces for resistance may be revealed within scientific ecology and its focus on interconnectivity, these are dampened by "long standing insensitivities and rationalist distortions in a wide range of areas, including knowledge itself" (Plumwood, 2002, p. 10). Thus, contesting the dominance of particular forms of cultural knowledge and their expression in school curriculum policy is not just a matter of "adding on" more ecologically sensitive understandings. When knowledge itself is considered mostly in mechanistic and instrumental terms (the hidden curriculum) then more radical ecological insights may well become subsumed.

The *Guidelines* demonstrated a similar approach to learning as that in the Belgrade Charter and Tbilisi Declaration. The focus is on the subject "environmental education" as the vehicle through which the student develops a presumably pre-determined knowledge set, along with the skills, awareness and appropriate values to maintain and improve the environment. As a form of citizenship education, EE aims to develop individual responsibility, behavior and attitudinal change, particular values and pro-environmental action (Gough, 2013). Broadly speaking EfS/ESD has been regarded as a vehicle for the development in students of particular pro-environmental values and attitudes. In addition, a stated goal of environmental education is the preparation of future citizens prepared to take environmental action.

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The assumption that knowledge is to be developed in students primarily in order to maintain and improve the environment is based on a view of knowledge that is instrumental in nature. Lotz-Sisitka et al. (2013) draw on Habermas to argue that education based on instrumental knowledge reflect a desire by humans to master and control the physical world. It is based on positivist scientific models and behaviorist approaches to environmental education. The focus on student performance and the development of pro-environmental behavior are key features of an instrumental-technicist educational approach.

Giroux (2001) argues that this type of approach is based on a technical rationality. The presumptions about knowledge are that it starts from the concrete, or "hard data" through which abstractions and generalizations are made (Giroux, 2001). The privileging of this kind of knowledge can be seen in the *Guidelines* with the description of education *in* the environment. This pedagogical technique involves taking students "beyond the classroom in both natural and built environments" (MoE, 1999, p. 14). The purpose of this endeavor is to provide opportunities to "develop skills in observation, data collection, practical inquiry and investigation, and the use of specialist technology" (MoE, 1999, p. 14). A concrete grounding such as this is said to help students "develop an appreciation of and a concern for the environment" (MoE, 1999, p. 14).

The conditions through which students may reflect have already been framed in scientific and technological terms, enframing what is knowable and valuing nature in terms of its "potential to serve human needs" (Bonnet, 2003). As Bonnett (2003) argues, "our underlying stance on nature's value will determine how environmental problems will be conceived and the *kinds* of answers that will be sought, that is, what will *count* as an answer. It will thus determine the kinds of knowledge and understanding to be considered relevant, and, fundamentally, what the ethical basis for judging policy and action will be" (Bonnett, 2003, p. 556).

Predominant EE/EfS approaches in schools have focused on individual behavior and attitudinal change and favor a natural science perspective on environmental issues (Kyburz-Graber, 2013). The vision is for responsible citizens equipped with a package of skills, understandings, knowledge, attitudes, values and competencies to actively engage with environmental issues. While championing a critical pedagogical approach, this is actually a form of domestication.

The anthropocentric bias is often not analyzed in discussion of environmental education (Kopnina, 2012). Yet our very alienation from nature and dislocation on earth should make this one of the most pivotal concerns. As humans our existential drama is the very stuff of a truly transformative and critical EE pedagogy. There are important areas of recent critique from re-

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searchers favoring socioecological and/or postmodernist frameworks (Gough, 2013).

The anthropocentric bias of neoliberal logic has been challenged by scholars in the field (see e.g. Castree, 1995; Kahn, 2008). Neoliberalism supports the dominant Western neoliberal positioning on the environment, based as it is on human–nature separateness and instrumental market-based economic logic. As McKenzie states: "Neoliberalism builds on a western trajectory of cultural norms and practices, including hierarchical dualisms of individual over social, human over environment, and industrialized or 'developed' over non-industrialized" (McKenzie, 2012, p. 165).

Dominant institutionalized responses to our current environmental and related social crises are clearly framed within the same logic that produced them. Yet it is not enough to challenge the ideologies that support the current globalized neoliberal regime and attempt to replace them with ecocentric and socially democratic progressive ideologies at a national level. Any counter-hegemonic response to neoliberalization of EE policy needs to carefully consider the global-national relation described above (Neilson, 2015). The response needs to include consideration of a global alternative model of development (Neilson, 2015) and not simply a transformation of values from soft-green to a more deep-green hue. As Neilson (2015) suggests, we need to "create a trans-national environment more compatible with progressive social reform at the national level" (p. 202). Deep-green and red-green premises may well be the basis of a counter-movement, but they need to inform a global model of development and not simply a national one.

From an educational point of view at least, ecopedagogy is an approach worthy of consideration. It counters anthropocentric bias of SDD and engages students in developing awareness of the ecological bottom line. It addresses not only planetary concerns, but also those that are place-based (Kahn, 2008).

Conclusion

The neoliberalized global world capitalist order is characterized by the ability of an economic elite to establish power through ideological means. This paper has demonstrated that New Zealand policy settings have become directly subordinated to the process of neoliberalization by the TNS; in particular the UN as an ideological interstate apparatus. Education is implicated in the process through which hegemony is created in an attempt to neutralize resistance to neoliberal capitalist expansion as described above. Principally the UN has been significant in disseminating universal and totalizing mandates for EE in the form of EfS/EfSD. This has occurred through supranational circuits that operate to disseminate neoliberal logic in a variegated fashion as it comes into contact with particular national settings.

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This paper has demonstrated that environmental policy broadly speaking and more specifically environmental education policy in New Zealand has filtered from high UN global summits, increasingly dominated by neoliberalized SDD. While neoliberalism takes variegated forms, the UN has nonetheless been successful in promoting a homogenization of environmental thought based in the last instance on neoliberal logic.

Education can be a critical part of a counter-movement. Currently EE policy and school curricula in general function to domesticate students into the status quo. As Giroux (2001) argues, our consciousness is constituted in our perceived needs, our unconscious activity and in our common sense assumptions about everyday life. SDD embraces the contradictions of capitalism and ecological integrity, building on Enlightenment ideas regarding the benefits of technological progress and economic growth. Our "needs" as humans, framed within the logic of capitalism, are further supported by SDD. SDD encourages conscious consumerism and a responsible citizenry, who resolve environmental issues through technology and innovation, are self-governing with the "right" pro-environmental attitude and behaviors. This is the neoliberal substance of SDD, reflected in EfS/EfSD curriculum policy.

It follows that EfS/EfSD, in disseminating the attitudes, norms and values of sustainability culture through curriculum, is an act of domestication (Freire, 1970/2005). As demonstrated in this article, EfS/EfSD does not engage students in a critical exploration of the unsustainability of the material conditions of production framing their everyday lives. Instead, it supports the massification of humans within the context of a highly technological, stratified and complex global social order. The universalizing tendencies of SDD, produced in part by UN institutions, and disseminated through EfS/EfSD curriculum policies, functions to domesticate, not liberate.

An ecopedagogical approach, such as that suggested by Richard Kahn can empower students to develop the critical thinking capacities to challenge the environmentally, socially and species exploitative norms of neoliberal logic.

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Article Five:

An auto-ethnography

Looking into the eyes of the 'other': Rescued bobby calf with author.

Photo used with permission from owner.

This last article is an auto-ethnography that details my emotional, psychical, and physical engagement with the political and cultural meanings I have explored in this thesis. Ultimately, writing this thesis has engaged me in a sustained critique of my own cultural experience of neoliberal capitalism and the impact this has on nonhuman nature. The common ideologies, including attitudes, values and beliefs about nonhuman nature in the New Zealand context are explored via an analysis of my work as an animal rights' activist.

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AN AUTO-ETHNOGRAPHY OF VEGAN PRAXIS AND ENCOUNTERS WITH THE MEAT-EATING CYBORG

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ABSTRACT. This paper is an experimental auto-ethnography based on an explication of my personal journey and vegan praxis as an academic, poet and writer. Through narrative, poetry and short stories it explores the cultural phenomena of institutionalized forms of animal use in late-stage capitalism. Donna Haraway's notion of the cyborg – a cybernetic organism that is both a human and a machine – is used to argue that in fusing the human body with the cultural inscriptions of science, capitalism and modernity, meat-eating fails to become a simply "natural" process (i.e. personal body and the body politic are one). Our bodies become culturally inscribed with the technological codes that become our very flesh. When meat-eating is considered in terms of the meat-eating "cyborg" it can be regarded as central to the Western plot of ever escalating domination of animals/nature. It is argued that through processes of bio-power, the categorization of certain animals constitutes a form of "framing" as "animals-becoming-meat" which renders them legitimately "killable" (Giraud, 2013; Rowe, 2011). In addition, through vivisection animals become the mere material fodder for experiential analysis without due attention being paid to their subjectivity.

Keywords: auto-ethnography; vegan praxis; meat-eating cyborg

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Introduction

> A cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction …The cyborg is our ontology, it gives us our politics … the cyborg is also the awful apocalyptic telos of the West's escalating dominations … (Haraway, 1990, p. 192).

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After I had read Donna Haraway's pivotal work "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" I was faced with an unsettling and dark realization. We are all cyborgs, a hybridized form of human and machine, programmed and encrypted with the cultural codes of our times. Counter to Haraway, however, I believe that there is no emancipatory or celebratory potential in the cyborg. There is no one good thing about techno-culture, the shadow – other that lurks in our unconscious. No matter how much we try and escape the confines of our culture we are mere products of the capitalist West longing for itself. We reproduce the traditions of domination and exploitation even while we imagine a better world based on progress, democracy, and technological advancement for the betterment of humankind. We are contradictions of ourselves; forms of good and evil carrying out an ill-fated and tragic capitalist trajectory.

I got up restlessly and looked in the mirror and took in my biological form and I felt ashamed looking at myself. I scratched my skin and watched red welts appear, resisting the impulse to make my blood run. I am relentlessly biological and a human. Underneath my skin lurk not only veins, blood, organs – but also impossibly – the technologies of the cyborg. What was staring back at me? Such thoughts reminded me of philosopher Jacques Derrida's own unease (naked and ashamed) to find himself under the gaze of the animal (a cat) while he showered. As Derrida says, to consider "the other" raises critical questions about *who we are* (Derrida, 2002). But what if the "other," the image in the mirror is not yourself, but the cyborg? How can we live with ourselves knowing that the machine lurks within?

In this paper I will use auto-ethnography to problematize how capitalist processes of production and consumption form the basis of our consciousness, turning us into cyborgs who are capable of reducing animals to commodities and objects to possess, consume and dispose of at will. As Dinesh Wadiwel suggests, "[f]actory farming and industrialised slaughter technologies … enable a monstrous deployment of technologies of violence and extermination. The scale of death defies imagination" (Wadiwel, 2009, p. 283). I am suggesting that through the concept of the cyborg we can begin to understand how the "technologies of violence and extermination" are techno-cultural systems that interpolate us. In other words, they become us and we become them. We are living our lives through a violent culture. We are cyborgs at war on the borders with animals – the nonhuman other.

Indeed, since the advent of modern Western science, industrialized agriculture and capitalist production patterns, humans have oppressed animals on such a grand scale and with a calculated violence never before seen. Each year literally billions of animals globally are killed for human consumption and systematically tortured in scientific experiments and other and cultural activities each year (Weisberg, 2009). Dinesh Wadiwel (2009) has gone so

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far as to call this a "war against animals;" and even a brief perusal of the statistics would make it difficult to disagree with his sentiment. "Recent data from US Department of Agriculture suggests that in the United States alone, approximately 34 million cows, 116 million pigs, 272 million turkeys and a staggering nine billion chickens were killed in 2008" (Wadiwel, 2009, p. 283). Wadiwel (2009) recounts similar devastating statistics from Australia. In New Zealand I will add the statistic of 2 million tiny new born calves, sent yearly to their untimely deaths.

My academic writing in the field of critical animal studies is central to my abolitionist animal rights activism. Through this forum I critique the ways in which industrialized violence has transformed human-animal relations that inform institutional practices such as agribusiness and pharming. I will critique these institutional practices focusing especially on the notion of the cyborg. Confronting the machine of industrial agriculture on both personal and cultural platforms, I am concerned to explore the processes of bio-power where the categorization of certain animals frames them as "becoming meat," a process which renders them legitimately killable.

Responding to Donna Haraway's notion of the cyborg – a cybernetic organism that is both a human and a machine – I argue that in fusing the human body with the cultural inscriptions of the machine, science and capitalism, meat eating fails to become a simply natural process. Neither is it one that can be legitimated, as Haraway's work on the cyborg suggests, through celebrations of hybridity and the dissolution of species integrity. Haraway has been critiqued especially for her work in *When Species Meet* (2008). In this she uses an instrumental framework to develop an ethical theoretical stance justifying "such violent practices as animal experimentation, genetic engineering, dog breeding and training, killing animals for food and hunting" (Weisberg, 2009, p. 23). As such this ethnography uncovers the menacing presence of the cyborg in contemporary culture while eschewing Haraway's privileging of cybernetic and hybrid organisms in the face of animal slaughter.

It is argued that the process of turning animals into objects who are "becoming something" (meat) not only renders the animal invisible but the human is dehumanized and takes the shape of the cyborg. As Carol Adams explains, "[w]hen humans turn a non-human into 'meat' someone who has a very particular, situated life, a unique being, is converted into something that has no individuality, no uniqueness, no specificity" (Adams, 2014, p. 19–20). Likewise when a human cannot see the subjectivity of the cow in the meat on his/her plate she is regarding it through cyborg eyes. The meat is not the flesh of a living, thinking, feeling individual who cared to live, but rather an object for consumption.

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The cow has been transformed from an animal to a commodified object. Adams (2014) calls meat a "false mass term" that obscures any individuality or subjectivity. "When five pounds of meatballs are added to a plate of meatballs, it is more of the same thing; nothing is changed. But taking a living cow, then killing and butchering that cow, and, finally, grinding up her flesh does not add a mass term to a mass term and result in more of the same. It destroys an individual" (pp. 19–20). This process of perceiving animals as mere objects in our human lives happens in a myriad of ways, repeatedly in our daily lives, as the codes of capitalist domination of the animal becomes increasingly encoded in our flesh. It turns us into cyborgs capable of unbecoming violence to the "other;" the animal. For example, consider the myth of "humane slaughter" (an oxymoron). In 2009 workers at Bushway Packing Plant in Grand Isle Vermont were filmed "shocking, kicking, and dragging downed calves" (The Humane Society of the United States, July 2012, p. 13). Similarly in 2014 an audit of 5 U.S. slaughter plants demonstrated "the shackling and hoisting of fully sensible claves by one back leg" (p. 13). Denial that this is representative of the industry as a whole is common, however is not substantiated.

The invisibility of vulnerable animal bodies within the context of capitalist production and the technologies associated with it is as much a political as an ethical issue. The mechanized and industrial technologies of the capitalist machine are justified by a form of political rationality that is encoded into the cyborg and renders the animal's subjectivity invisible. The dissemination of dominant rationalities about the animal as object/commodity through legal, medical, technological and educational processes is a political project. It raises important questions about the ways we are governed and indeed how we govern ourselves in the service of the commodification of animal life (Broglio, 2013). Michel Foucault refers to the production of docile bodies as "biopower" encoded with the technologies and the production of self-governing human bodies who carry out the technologies of domination over vulnerable animal bodies. In this paper I draw on Foucault to explore the genealogies of biopower illustrated in scientist and agricultural discourses of the capitalist West (Lemke, 2001).

Auto-ethnographic Accounts of Cyborg Encounters

Example one

Drawing on the burgeoning academic field of critical animal studies, the following is based on an explication of my personal journey and vegan praxis. The first example of my encounter with the cybernetic organism comes from the experience of bobby calf rescue. This is as an act of resistance against

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what has become normalized and routine cruelty in the dairy industry involving the removal of new born calves from their mothers and sending them to slaughter between 4–10 days of life. The experience recounted below occurred during the rescue of some calves; as always they cannot all be rescued. There are too many. In New Zealand over 2 million bobby calves are sent to slaughter each year.

"I faced the mirror, the 'other world' of science fiction, and I saw us standing there. I stepped through and faced the cyborg and saw in our common language myself reflected in her eyes. We were having a dialogue about a calf. He was going to die.

He lay curled up, head to hoof in a calf pen, as we watched. Between irregular breaths he shuddered, and his newness reminded me of my own babies on their first day of birth. I felt a wrenching anxiety for his motherless state.

"Why is he twitching like that?" I asked the cyborg.

"Oh he's fine, he's just having little memories, as I like to call them."

I swallowed my response deep into the pit of my stomach as bitter desperation flooded my veins. I wondered what the cyborg had meant by memories, what gave her the sense of legitimacy to name them so dismissively. What right she had to annihilate his entire bovine existence, even while he slept.

I thought of the ancestral memories he shared with his entire species, a species that did not belong to this or any farmer. What right did they have to enslave him, to seize him from his mother, so they could take his milk and sell it? The farmer may lay claim to his body, but not his memories, never his memories. They belong to him, his mother, his ancestors and the earth that has made his life possible.

A life soon to be annihilated.

After nine months in utero he was catching up with centuries of survival. In a natural state he would have lain hidden in the long grass while his mother and the rest of the herd remained close. He would have frequently drunk his mother's new milk, called colostrum, gaining in weight and strength.

Or maybe the dream was about his mother.

Let him have those last dreams before he is roughly taken onto a truck. The cyborg, his oppressor, cannot take these from him. They are his essence, his existence, his true life.

I choose my words not carefully, for there is no eloquent way to say that he must die. Die in fear, with only those dreams to comfort him as the bolt sears his brain and he shudders in violent collapse. His blood will spurt and seep as they stick the knife in his chest.

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And I would hold him if I could in my arms and I would love him. I want to fall to my knees and weep, to ground myself in the Earth and tear off my cybernetic flesh. I want to take his little head in my hands and touch my forehead with his. I want to smell his calf breath and feel his warm body.

But I am also a cyborg and my love is tainted. I feel like a traitor as I leave him there in his pen waiting for his death. Did I not once drink the milk of his species myself? Did it not now flood my veins, am I redeemed?

I would let his blood coat me if it would prevent his death. But I leave him there. Alone. Waiting his death.

I am cyborg. I am contradiction. I am part human (subject, hope, possibility, resistance and love). But I am also part capitalist machine (object, death, impossibility, conformity and hate).

I am cyborg. Hear me.

Example two

My experience as an animal rights activist and vegan is varied, but one of the main platforms for dialogue and critique of the dairy industry is social media. I have constructed a social media page which works in conjunction with a small bobby calf rescue. The main premise of my page is that dairy farming is a form of institutionalized violence involving the removal of a calf from his/her mother soon after birth and the slaughter of calves deemed of no use for replacement herd or meat production. To illustrate the subjective experience of calves, and to counter the objectification of them as commodities, I journal the lives of the ones that are rescued. All calves rescued were due to be sent to slaughter in their first two weeks of their lives. My aim is to make the calves and cows who have been rendered objects of mass capitalist production visible. In doing so I am open to dialogue with both supporters of the cause and those who work in the dairy industry. My critique of the dairy industry in this manner has led to repeated personal attacks through private messages and on the page itself, letters sent to my employer asking that I be disciplined, dialogue with dairy farmers and the creation of a discussion board where people present a range of views on the subject of dairying.

My hands hover uncertainly above the keyboard, tracing the smooth ridges, and I notice I am trembling. I am about to engage with the cyborg in the mirror through my fingertips.

I enter the cybernetic world. Electricity spreads through my nerves and jolts me alive as I press the keys. At first I am slow and cautious, still in touch with the human world, enjoying the aroma of coffee.

Then I encounter the meat-eating cyborg.

She sends calves to slaughter and she tells me that is life. Her energy tries to dominate and colonize my body. She tells me I am stupid, unrealistic,

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disgusting for criticizing the farming industry. How else could I survive, she says, without farmers, without the cyborg?

But I don't want to be friends with the meat-eating cyborg and I am diminished as a war wages on the borders of our existences.

I am shaking as the meat-eating cyborgs rise up in waves flooding my cyber page and trying to kill my human form.

But I am the cyborg too and the page is the cyborg paper and I am using cyborg technology.

I stare at the other that is me and I am ashamed.

The Challenge to the Meat-eating Cyborg: The Post-humanist Ethics of Derrida

Animal studies as an academic field emerged from this contestation of current animal–human relations. A post-humanist ethics based on Derrida, that moves beyond traditional animal rights claims has striking implications for deconstructing and countering the meat-eating cyborg, even while acknowledging that humans will always be cybernetic. Consciousness of ourselves as cybernetic provides a space to critically analyze the ethics informing the historically specific cyborg that we have become. Some of the work in the post-humanist field that is useful in this regard includes the development of post-humanist ethics that challenge the very distinction between animals and humans as a position to guide the human use and misuse of animals (Wolfe, 2009).

Derrida calls on us to challenge the assumption that animals are not conscious beings (as humans are) and argues that animals find their lives meaningful on their own terms. The Western idea that animals are not conscious stems from Rene Descartes (1596–1650) who put forward the sixteenth – seventeenth century thesis that animals are automata – that is, mere machines that do not think and have no language or self-consciousness (Harrison, 1992). Instead of accepting this view we might inverse Descartes binary construction and consider ourselves as a machine-like cyborg who has manifested in our beings the technological and material processes of animals becoming meat. We ourselves are in part, mere machine.

For example in the modern industrialized west the supermarket is a space where consumer identities are fostered, nurtured and internalized. Consumers are encouraged to see animals as reified disembodied food. They are the final step in the assembly line production, at once a product as much as a consumer. The capitalist system is one with the consumer, operating in some kind of embodied cyborg state, oblivious to but nevertheless connected to the mainframe, that is, the machines in the slaughter house. When meat eating is considered in terms of this conjoinment, that is the consumer with

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the machines of industrial slaughter, a new figure appears, one that I call the meat-eating cyborg. This meat-eating cyborg can be regarded as central to the Western design of ever escalating domination over animals and nature.

The systemized cruelty inherent in the process of "animals-becoming-meat" is based on the fundamental assumption that humans are superior to animals (Rowe, 2011). This has a long history in Enlightenment thought. To speak of life and death in mechanistic terms was part of the great scientific revolution of the eighteenth and nineteenth century. The animal's body was regarded as a machine and was considered devoid of a soul. As such Descartes thought that animals lacked consciousness of their feelings, and were bereft of reason and metaphysical awareness.

Derrida argues that humans are carno-phallogocentric and this needs to be challenged and deconstructed (Wright-Maley, 2011).Thus the issue of human-animal relations is one of critical significance to any analysis of the human condition. The reason for this, according to Derrida, is that humans define themselves in relation to the "other" (Derrida, 2002). Derrida argues that we see ourselves in the other; that it is only through the other that we can conceive of ourselves – of who *we are*. He writes:

> "Since so long ago, can we say that the animal has been looking at us?
>
> What animal? The other.
>
> I often ask myself, just to see, *who I am* – and who I am (following) at the moment when, caught naked, in silence, by the gaze of an animal, for example the eyes of a cat, I have trouble, yes, a bad time overcoming my embarrassment" (Derrida, 2002).

It is possible for us to critique and deconstruct current human-animal relations by considering Derrida's provocation: "what is becoming of so-called animal life, the life and existence of 'animals' in this history?" (cited in Wood, 2007). We can argue for nonviolent economic formation and interspecies communication and connection. This can be done through a deconstruction of the anthropocentric assumptions that are so central to the capitalist evolution. For it is only through fundamentally destabilizing and reconstructing new notions of animals and nature can we begin to envision a new way of being in the world that does not involve the commodification, objectification and abuse of animals.

In addition we need to take seriously the suggestion of looking into "the eyes of the other" (Derrida, 2002, p. 381). Derrida identifies particular modes with which we relate to the animal, "being *after*, being *alongside*, being *near (*pres)… being *with*" (Derrida, 2002, p. 379).

> "what is meant by living, speaking, dying, being and world as in being-in-the-world or being to-wards the world, or being with,

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> being-before, being-behind, being-after, being and following, being followed or being following, there where I am, in one way or another, but unimpeachably, *near* what they call the animal" (Derrida, 2002, p. 379).

Thus, to deconstruct the invisibility of animals in the capitalist machine we need to begin to embrace looking in and through their eyes. The following poem attempts to address this provocation.

I am a vegan philosopher
"I think therefore I am", said Rene Descartes.
I am thinking of the 'other': The animal.
The 'not-us', the 'in-us'. The 'outside-us'.

Descartes said they are machine
'Not-soul', 'not-mind', not 'like-us'.
They are a ghostly form; a nagging whisper of existence.
Invisible / visible snippets on the transport truck,
tail hanging out, tuft of hair, pushing through the iron.
A smell, strong and pungent settling thickly in our noses insisting:
'We are here'.

Even though we are 'not-you', they call out
urgently from the edges of our human existence,
in bellows and grunts. 'We exist', they say.
They watch from the side-lines of our lives.
Their eyes blink slowly, carefully over eyes that see.
Breathing is warm and rhythmic, chests rising and falling
under gentle noses pressing against the unforgiving bars.

The rhythm of life that moves in them 'is-you', 'is-me', 'is-us'.
"More humble and I think truer", said Charles Darwin
"to consider humans created from Animals"
The 'not-us' is 'in-us'.

The truck sways and jolts.
Their blood rushes and flows through Earth's veins;
Streams of red soon to be spilled on concrete floors,
and washed to nowhere, obsolete.
And their hearts, pumping as the ocean, will stop.

"Since so long ago, can we say that the animal
has been looking 'at us'? Said Jacques Derrida.
What animal? The other".

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Now they look 'at-us' from your
plate and cup. Frothy milky coffee; Tender sweet veal;
Gratifying comforting eggs.
Tantalising and finally accepted into full view,
as their now pleasing smell lingers and intermingles
'with-us'.

You are here we say; we see you now.
But it is too late. They are 'not-us', they are 'in-us'.
Rhythms of their existence pulse gently as the ocean:
inside our bodies but outside our minds;
inside our culture, but outside our souls;
inside our language, but outside of meaning.
They are like smoke,
tangling hopelessly through our human lives.

They are 'not-us'. They 'are-us'.
They are from a time long ago and captives of the present.
"There is solidarity in suffering with the nonhuman"
Said Katerina Kolozora.
But our carnist hearts must burn and twist with the shame of murder
thundering in our veins.
"We will not find peace" said Albert Schweitzer
long ago.

'See-us', they whisper from the plates
on your table.
'Hear-us'.

Hearing the animal requires the deconstruction of dominant cultural constructs that are encoded in the meat-eating cyborg. The following section will outline the nature of human-animal difference as it is culturally framed in the Western instrumentalist terms.

Powerful Cultural Constructs of Human/Animal Difference: Carnism and Speciesism

Standard approaches to determining the moral status of animals are flawed. The focus on individuals in isolation from their context fails to capture the political structures, particularly the structures of power that underlie current practices in which animals are used. For example, according to some eco-feminists there is a conceptual link between the "logic of domination" that operates to reinforce sexism and the logic that supports the oppression of

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non-human animals, a link that translates into individual and institutional practices that are harmful to both women and animals (Plumwood, 1986).

Melanie Joy (2011) labels the ideology that meat eating is natural, necessary and normal as "carnism." She argues that drawing on the ideology that humans have used animals for food and fibre since the dawn of time, we are seduced into believing that eating meat is natural and normal. Joy also discusses "speciesism" (coined by Peter Singer), the doctrine that humans are superior to non-human animals in virtue of their intelligence, ability to reason and to be truly self-conscious. This classical humanist perspective creates an appearance of humans as being the yard-stick against which everything else must be measured. Speciesism leads to the social perception of animals as objects and not subjects of their own existence. Joy describes this well, "one might react quite differently to the notion that the meat on his or her own plate had been some*one* rather than some*thing*" (Joy, 2005, p. 115).

Certainly in an ever-changing world, the use of animals by humans has remained constant. According to Bernard E. Rollin (2008), contemporary agriculture differs from previous forms of animal use in one very important way. Before the advent of high-technology agriculture, animal husbandry took into account an animal's *tele*. This term derives from the Aristotelian concept of *telos*. Aristotle, a student of Plato, introduced the concept of *telos* to analyze the nature of things, and to provide a synthesis of change and constancy. Telos is eternally fixed and refers to the "essence and purpose" of a creature (Rollin, 2008). For Aristotle, other animals have a *telos*. Hence, while an individual cat may come and go, "cat-ness" endures, and as humans we can come to know this.

Rollin (2008) describes how in the "ancient contract," animal productivity was closely linked to their welfare. The shepherd, for example, had to take into account the *telos* of the sheep and considered their needs in a holistic fashion. In the mid-twentieth century however, the use of science and bio-medicine enabled the success of large scale animal use. This supplanted small-scale animal husbandry as the industrial revolution took humans away from self-sufficient lifestyles and they became dependent on selling their labor to make a living. Agricultural production settled into the hands of a few.

If we are to take the concept of natural teleology seriously, then we need to acknowledge, as Rollin does, that animals have certain requirements, "flowing from their natures" (Rollin, 2008, p. 344). Large-scale agricultural production thwarts the animal's *telos* in important ways. Since Ruth Harrison wrote *Animal Machines* in 1964 exposing conditions on factory farms there has been increased legal concern for their welfare. In the United Kingdom, the Farm Animal Welfare Council (FAWC) advised the government of the five freedoms that animals should be entitled to on a legal level. The "free-

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dom to express normal behavior" is a nod in the direction of considering an animal's *telos*, and not simply their basic physical requirements for survival.

Relations of Dominance: Agribusiness, Factory Farming and Vivisection

This section is an attempt to illustrate come of the genealogical discursive influences that inform the meat-eating cyborg. Factory farmed animals continue to be subject to horrific confinement, which clearly violates the nature of their being; or who they strive to be. Battery cages for layer hens are one such example. In New Zealand the *Code of Welfare for layer hens* (2004) dictated that cages built after January 2005 must allow 550 cm squared per hen. Anyone who has watched hens expressing their natural behaviors as an expression of their "hen-ness," would understand the torment these hens experience in their purpose-bred existence of egg production. They have an intense need to scratch the earth with their feet in search of food, to dust bathe and to spread their wings and to run. Yet factory farmed hens spend their lives in cages. Their feet are as clean as the day they hatched, they live on sloping steel bars. Their beaks are "trimmed" to avoid pecking other birds in frustration.

It is not just hens who have their *telos* denied. The worst manifestations of confinement are the "crate" for sows and calves. In the United States, the majority of calves raised for veal meat are confined in individual stalls measuring 66–76 cm wide by 168 cm long (The Humane Society of the United States, July 2012). Calves are tethered in open back crates, preventing virtually all movement until they reach the weight for slaughter. These calves have been separated from their mothers within a few hours of birth causing distress on both sides. As the HSUS report states, "in natural herds, dam and calf from very strong and long lasting bonds." They are "not allowed to suck, to have a social life, or to ruminate" (The Humane Society of the United States, July 2012, p. 3). In addition, these special fed veal calves (slaughtered at 16–18 weeks) have their meat marketed for its pale hue as they are only fed on milk. They suffer high morbidity rates and anaemia. Maternal and social deprivation, colostrum deficiency, impaired immune function, denial of sucking behaviors, prevention of stereotypical behavior of sucking and chewing, the inability to explore and exercise lead to abnormal behaviors in these calves. And finally, at the slaughter many of these calves are too weak to stand or walk and become subject to the abusive behaviors of stressed workers charged with handling them.

Working at grassroots level as an animal rights activist I get many first-hand stories of farming and slaughter practices relayed to me. Recently I was told (by another animal rights activist) that a worker in a slaughter house in New Zealand "processing" bobby calves complained to her boss that the stun

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gun was not working and the calves were kicking her, causing bruising. She was also distressed at the calves' evident agony, and asked that the processing line halt until the gun was fixed. Her boss replied to her to that he did not "pay her to think" and asked her to return to work. She filmed the resulting illegal and inhumane slaughter which we hope to make public. Until then I use writing to cope with my own distress. As I reflect on their lives I begin to feel their pain and process the emotions it triggers. I am a vegan writer. I write their lives. I become them.

"I begin to write the pain and it hurts. My jaw clenches as the cyborg comes into view. The calf looks up as the cyborg arrives with his milk. He pushes forward and hungrily sucks at the rubber teat, butting it as if it were his mother's udder. He cannot know the difference. He was taken from her. I write as I feel the calf, the not-me, the you. You. Calf. Sitting there in your pen, I sense you in my veins, I see your bars from the inside, I hear your heart beat slowly, like it might stop any moment in the timeless air. I write to tell your story of prison to a dead audience. It's an endless circular prison. Your hooves shift, grimly searching for grass they will never feel. Your heart yearns for something, but you don't know what. The prison becomes your mind; your mind becomes a prison. I am writing your prison.

An ancient song echoes on the edges of existence, I can hear it too, calf, it calls from my words. Rustling leaves, tinkling sunlight, gurgling water. Just out of your mind. Out of existence and out of your mind. A long night arrives, You are on death row. The song dims. Crouching and huddled you begin to fear the rough boot of the farmer who yanks you by your ears. Then someone lifts you. I wrote them in to your story, calf, I am sorry. Desperately you squirm. The ancient song has now stopped completely, you cannot hear it, and you do not know it anymore.

You are yanked from your prison and roughly thrown onto a truck. Briefly, you glimpse the sun; feel the air as you are loaded. The song begins again, I hear it too, calf. A slight hope is reborn. Your leg hurts; I feel it calf, I can, it is bruised. I bruised your leg with my words. Then they try and stun you but the gun does not work. Now you are hanging upside down, shackled. The knife slices your throat and blood now runs in a stream of pain, coats my written words. You kick. The song of death is sweet, I can taste it calf, its melody is the dripping of the blood, forming rivulets, free at last. But the audience don't hear it, calf. They are dead too".

Vivisection is another practice of domination by the cyborg. It is both a word and it is a world. It is a word we may utter to refer to research practiced on animals by humans. As a word it stands alone, proclaiming its Latin derivation. The word "vivisection" comes from the Latin *vivus*, which means

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"alive;" and from *section* which means "cutting." Vivus – being alive with a body that is warm and breathing, and a heart which is pumping and limbs that are moving. Section – cutting into one's living body and soul.

Vivisection is a sticky and bloody word that is difficult to say. Some people try and sterilize the word "vivisection," and to twist it so that it comes to mean something else altogether. So that we can say it without the stickiness. But like a worn piece of old rubber, it can be stretched but its form never really alters. Like a gangrenous wound, vivisection has many dimensions and none of them are palatable. Vivisection is not simply a tool for gaining knowledge of anatomy and to ascertain the effects of certain drugs for human medical advancement. It is also an integral part of pet, legal, cosmetic and biomedical industries. Legal protection is limited and companies are able to test their products on animals.

The testing of legal highs on Beagles in New Zealand is a case in point. In December 2012, Neil Reid reported that, "[d]ogs will be forced to take lethal doses of party pills under a controversial scientific testing method being considered by the Government to determine whether the designer drugs are safe for humans" (Reid, 2012). The Associate Health Minister Peter Dunne says he regarded this as unpleasant – but necessary to ensure human safety.

Laboratory based scientific experiential work such as vivisection is based on the privileging of controlled, evidence-based research. Continuing the tenets of mechanistic science, this paradigm is narrow and devoid of a holistic understanding of the world. In fact biomedical research on animals ignores contextual factors such as evolutionary niches and the implications of this. Evolution is regarded as speculative only and so chimpanzees may be used with as little compunction as a starfish.

Scientific acceptance of vivisection in the West has been firmly established. The white-robed scientist, cutting meticulously into the folds of skin and muscle of animals, injecting them with dangerous substances, incarcerating, killing and hurting them is not considered an oddity. Instead the scientist is hailed by many as a modern-day hero. The concept of vivisection has now broadened to include not just the cutting of animals, but also any animal experimentation. Hans Ruesch (1978) in his book *Slaughter of the Innocent* writes that, "the term also applies to experiments done with the administration of noxious substances, burns, electric or traumatic shocks, drawn-out deprivations of food and drink, psychological tortures leading to mental imbalance, and so forth."

Pet breeders supply an ever-lasting stream of animals for toxicity testing on chemicals and medical research. Born into enslaved conditions these animals have never known what it is to live for their own species-being. They live solely for the uses they are put to from the scientific community. Beagles are often in the news as they are widespread subjects of animal

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experimentation. What have these floppy eared, doe eyed innocents done to deserve this? The answer will not surprise anyone who has ever lived with a beagle – it is because they are docile. They will not bite the hand that tests them.

Galen of Pergamon was a second century Roman physician, whose experiments on animals, including the old world Barbary Macaque monkey, have formed the basis of much modern day Western medicine (Rudacille, 2000). His purpose was to study anatomy and these little monkeys, unique for their parenting styles where the male is integral to child rearing, were seen as ideal candidates. Church sanctions at the time on dissecting human cadavers prevented Galen from studying human anatomy at the source. While the insights that Galen developed have since been refuted, they did set an important precedent in using animals for medical research and knowledge (Rudacille, 2000).

While vivisection means to cut into one who is alive, it can be twisted to mean medical progress and human betterment. One of the strongest early proponents of vivisection was a professor of physiology called Claude Bernard (1813–1878). His textbook *Introduction to the Study of Experimental Medicine* was an attempt to provide a scientific rational for vivisection. He writes, "[t]o learn how men and animals live, we cannot avoid seeing great numbers of them die, because the mechanism of life can be unveiled and proved only by knowledge of the mechanisms of death" (Rudacille, 2000).

Descartes practiced avid vivisection and engaged in this horrific act countless times. Presumably his line of thought explored above exonerated him of committing a crime against God, as animals were not regarded as having non-corporeal souls. But Descartes was not alone. Live animal experimentation and public vivesection has a long history. In the seventeenth century theological justification for the exploitation of animals for human use was practiced widely (Guerrini, 1989).

Putting a bird in an air pump was a common experiment from mid-1660s. It consisted of placing an animal in a "pneumatick engine," which created a vacuum chamber and all the air was pumped out. The animals inevitably died as a result in a quest to explore the "physical properties of air and its physiological function" (Guerrini, 1989, p. 395). Robert Boyle (1627–1691) was a chemist, physicist and philosopher who performed countless vacuum experiments on a range of animals including ducks and cats. It is also recorded that he attempted to drown a duck, lifting it many times from the water to see if it was dead or not. The quest for the knowledge of nature through animal experimentation was justified by Boyle on theological grounds that "the rest of the creatures were made for man, since he alone of the visible world is able to enjoy, use and relish many of the other creatures and to discern the omniscience, almightiness, and goodness of their author in them."

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In the 1800s, vivisection as a scientific medical practice was still in its early days and not wholeheartedly accepted. Bernard's wife, Marie-Françoise Bernard, could not understand why her husband cut up animals, a sentiment that has echoed until the current day. But Bernard was also considered strange by physicians at the time, who likewise could not make the connection between mutilating animal's bodies and cures for common diseases such as tuberculosis, diphtheria, typhus and plague (Guerrini, 1989).

One justification used by the medical field is that animals have a similar biochemistry to humans. They are thus seen as useful to advance medical knowledge. The American Medical Association (AMA) writes, "In fact, virtually every advance in medical science in the 20th century, from antibiotics and vaccines to antidepressant drugs and organ transplants, has been achieved either directly or indirectly through the use of animals in laboratory experiments." But animals differ from minerals and plants that are used by chemists and physicists in important ways. Animals are sentient – they can think and feel and have consciousness. Animals have complex emotional lives and they have a strong desire to live their lives on their own terms (Bekoff, 2007).

Conclusion

To be alive is to experience the ancient song of life, each part of the miracle of the body, so intricately connected with one's soulful existence, one's telos. But the cyborg world is one of pain, confusion and hopeless surrender. Ultimately it is a world that involves surrender to death; especially for those who were born to die.

Animals within the capitalist agricultural industrial machine suffer enormously and this is well documented. What is perhaps less well explored is our internalization of the violence of these capitalist technologies so that we too, become the machine: a human cyborg. This auto-ethnography has been an explicit political act documenting through theory, narrative and poetry the cultural ways of the meat-eating cyborg. Above all it is an attempt to give voice to those defenseless beings who have been rendered "killable." As I am speaking cyborg to cyborg, to my reflection, it will maybe never be enough. This screen may never decode my message. My trembling hands may never be still.

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