urban futures

critical commentaries on shaping the city

edited by Malcolm Miles and Tim Hall

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Landscape, Ecology, Art and Change

INTRODUCTION

Restoration ecology is the emerging paradigmatic relationship of humanity to nature. It has occurred in response to the industrial revolution and its massive programme utilising nature as both raw material and sink for wastes. Restoration ecology establishes a new relationship to nature by addressing a range of damaged land and water systems in both urban and rural settings. Restoration ecology is a community of disciplines, which acts upon natural systems through the sciences and engineering; and upon cultural values through the arts and humanities.

If we are going to restore ecosystems, practitioners must engage nature through primary experience. Restoration ecology redirects the concepts of agriculture and gardening, to a programme of healing nature. Restoration ecology emerges from a culture that is beginning to recognise its detrimental effect on nature, and is seeking new ways to understand and act upon a range of post-industrial problems. In the following pages, We will explore ideas of applied and cultural ecologies. We will conclude with a manifesto, which places art and ecology (eco-art) in the midst of the radical human ecologies and social-environmental change.

APPLIED ECOLOGIES

Preservation, conservation, and restoration ecology

Restoration ecology is a logical outcome of the projects of conservation and preservation. Preservation and conservation emerged in the years around the turn of the twentieth century in response to growth and development in the American West. Preservation began with the aesthetic/scientific interests of botanisers and gardeners in the subject of trees. Organised groups at that time helped to establish Arbor Day and promoted a plan for national forest preserves. This interest in nature was fuelled by the writings of the naturalist/authors Emerson, Thoreau and Muir. A popular movement, preservation was soon balanced by a more practical and scientific voice. The project of conservation has been described by Samuel Hays (1959: 123) as 'efficiency in the development and use of all natural resources'. Established during Theodore Roosevelt's presidency, conservation was defined by Gifford Pinchot and others as a rational approach to land management.

Conservation theory was rooted in an engineering approach to applied knowledge. The ultimate goal was properly to inventory all natural resources prior to a planned development intended to achieve efficient use and minimise waste. This is still the focus of conservation biologists worldwide who inventory natural communities and their movements, then manage habitat so that select species

(either migratory or indigenous) will prosper. Conservation and preservation are programmes that are driven by a reaction to human disturbance of natural systems. Conservation projects today involve large habitat areas, nesting areas, and numerous migration areas where landscapes are managed to the best advantage of a single species or groups of similar species.

Preservation and conservation were forged as a binary pair. Preservation was primarily a citizen-based cultural programme inspired by naturalist authors and artists, while conservation was primarily an expert-based scientific programme. Preservationists supplied the social and nature-aesthetic argument for protection of national forests as public land while the conservationists inventoried and planned for the rational development of public lands. This binary pair was alternately oppositional and collegial in pursuit of their goals. The preservationist rhetoric was about keeping wild areas and wildlife from commercial development and use. The conservation policy goals of the era included protecting large tracts of land, watersheds and forests, sustained forestry, dams and water-power, hunting, grazing and mineral-mining rights. The Hetch Hetchy and Yosemite Valleys in California are probably the best examples of the oppositional outcomes of the preservation and conservation movement.

Preservation and conservation were a reaction to the perception of encroaching physical limits within the United States. Preservationists believed that wilderness was in a state of grace, beyond the limits of human habitation. Nature was something to be preserved and contained for future generations. The conservationist believed that wilderness was a resource bounty to be managed and controlled for long-term economic benefits. Both of these philosophical and political positions placed nature (in the form of wilderness and land resource) well beyond the limits of cities or towns.

Restoration ecology is a new way of thinking. It links citizens and experts, as well as cities and wilderness, in a broad programme of ecological awareness and action. It is a community of disciplines synthesising a continuum of diverse cultural practices. On one end lie the arts and humanities, in the middle are the design professions, at the other end science and engineering. Restoration ecology has been touted as a new relationship to nature, one in which the old reductionist paradigm is reversed and scientists are charged with re-assembling a working nature from the pieces discovered over the last 200 years, taking it apart. While the machine metaphor was useful in the disassembly and analysis of nature, it is less useful when re-assembling nature. The aesthetic roots of restoration ecology can be found in the urban-nature design projects of Frederick Law Olmsted (particularly the Fens of Boston, 1881). The roots of its science lie in Aldo Leopold's work restoring the lands of the University of Wisconsin–Madison Arboretum (1934).

It can be argued that this 'discipline' was established in the early 1980s, in part by the efforts of William Jordan III (1984), a botanist and journalist who was employed at the Madison Arboretum and saw the potential of Leopold's ideas in a contemporary setting. During the fiftieth anniversary of the Madison Arboretum, he published a seminal text declaring the import of this area. This was followed by a symposium on restoration ecology, which brought together some of the key thinkers worldwide. This resulted in an edited text, *Restoration Ecology: A Synthetic Approach to Ecological Research* (Jordan, 1987). In Jordan's original document, he was interpreting restoration ecology as a mixture of cultural and scientific efforts, 'active as a shaper of the landscape, yet attentive to nature and receptive to its subtlest secrets and most intricate relationships. The restorationist is in this sense like an artist and a scientist, impelled to look closer, drawn into lively curiosity and the most intricate relationships' (Jordan, 1987: 24). After Leopold, Jordan is clear that restoration is about restoring a 'whole natural community, not taking nature apart and simplifying it, but putting it back together again, bit by bit, plant by plant', concluding, in his own words, 'the ecologist version of healing' (Jordan, 1987: 23). Jordan commented on the import of restoring

whole communities in this text, but he also recognised the import of restoring (reclaiming) industrial sites (referencing the noted biologist Anthony Bradshaw's pioneering work on coal mining sites in England). Jordan sees the Madison Arboretum as a research laboratory for work that will be in increasing demand in the future, due to the fact that the industrial revolution has provided humanity with the tools to affect nature on a grand scale. The work that first found its symbolic and intellectual focus as a result of the anniversary of the Madison Arboretum occurs around the world today. Today there are academic, private industry, non-profit and federal government models of restoration practices. In 1988 the Society for Ecological Restoration was announced at the Restore the Earth Conference in Berkeley, California through the efforts of John P. Rieger, John T. Stanley on the west coast and William Jordan in Wisconsin. There are now two journals attending the area, *Restoration Ecology: The Journal of the Society for Ecological Restoration*, published by Blackwell Science, and *Ecological Restoration*, published by the University of Wisconsin–Madison Arboretum. Each year, the disciplines of anthropology, art, biology, botany, ecology, engineering, philosophy and poetry participate with government regulators, first peoples, citizen activists, policy makers and spiritual leaders at the annual Society for Ecological Restoration Conferences (http://www.ser.org).

Restoration ecology attempts both to define and reconstruct nature while staying aware (and respectful) of the complexities of the process, its ethical context and the social potential of its performative aspects. Restoration ecology is an important new area of thinking and acting. It provides us with experiences and knowledges that can transform the human relationship to nature.

RESTORATION ECOLOGY – CONCEPTS AND PRACTICES

Nature can be restored to its 'historical form' if there is a record of the ecosystems' component parts, or a likely reference ecosystem can be identified, and the soils and hydrology remain untouched. In urban settings there is little left untouched, soils and hydrology are almost always affected. The historical model and its expert-defined parameters are the exception rather than the norm. More likely the restorationist is faced with conditions which are challenging: in other words, disturbed soils and a radically changed hydrology. Furthermore, the work occurs in a social setting where the perception of nature and its physical manifestation is quite diverse. In the words of Anthony Bradshaw (1995: 105), 'The primary goal of restoration is an aesthetic one – to restore the visible environmental quality of the area.' This means that the decision to restore is both cultural and discursive, a mix of science, art and democracy. Once the site has lost its soils and hydrology, the expert is seeking to define an aesthetic target that is relevant to a local community.

Philosopher Andrew Light (2000) has written extensively about the import of the social element in restoration ecology. 'Restoration is not inherently democratic, but it does have an inherent democratic potential. The problem is not just to identify this potential, but to make a case for why it is part of the criteria for what identifies restoration as a good environmental practice' (Light, 2000: 165). The democratic potential of restoration programmes is revealed at three steps in the process:

1 In terms of the goal of restoration, which must be set in such a way that it reflects local aesthetics.
2 In terms of the act of restoration, when additional bodies, hands, hearts and minds can invest the project with diverse integrity and stewardship.
3 During the monitoring period after planting, where citizens can gauge the efficacy of their actions.

This democratic potential and its social benefits are not inconsequential. The concept was the basis of the $85 million Changing Places

programme of the Groundwork Trust in the United Kingdom (Groundwork Trust, 1999–2001). Changing Places invested money to recover the aesthetic quality of local environments, in communities ravaged by industry. It integrated restoration ecology, social recovery and community arts in the programme.

The definition, goals and ethics of restoration are a consistent point of discussion from a range of points of view. In 'Sunflower Forest: Ecological Restoration as the Basis for a New Environmental Paradigm' (Jordan, 1994: 205–20) and 'A Field Guide to the Synthetic Landscape: Toward a New Environmental Ethic' (Turner, 1998: 195–204), the botanist William Jordan and poet and philosopher Frederick Turner describe restoration as a new relationship to gardening or agriculture. They see restoration as a culture–nature activity in which benefit goes to the ecosystem rather than the ecosystem providing benefit in terms of products for the gardener or farmer. In this emergent relationship, the concept of nature as an instrument of humanity is expanded to nature as a relational entity worthy of human investment. This expanded concept of nature takes us away from a human use value and towards the recognition of the value of ecosystems and their component organisms.

Other philosophers and theorists with important contributions to the philosophy of restoration ecology include Robert Elliot, Cheryl Foster, Eric Katz and William Throop. The interest of these 'cultural ecologists' can be defined by the pursuit of ethical positions in an arena where the foundation of knowledge is in constant flux, and the context for action is a moving target. Much of the discussion has revolved around the idea of restoration (and some of our 'natural' monuments) as 'counterfeit nature' or nothing more than another human artefact (Throop, 2000: 71–134). Other discussions (primarily amongst the scientists) revolve around the various valances of meaning that surround the descriptive terms of practice and the means of evaluating projects. There has been an ongoing dialogue about the shaded meanings of restoration, reclamation, mitigation or revegetation. Restoration can refer to the recovery of biological communities, or it can refer to the recovery at the landscape ecology scale. Reclamation usually refers to the recovery of strip mining sites, or areas of industrial soil. Mitigation is currently specific to wetland recovery; usually replacements are created to replace those lost to development. Revegetation might involve the recovery of a forest, on farmland. Joan G. Ehrenfeld (2000) has identified at least four approaches to restoration ecology (Figure 9.1). These four strands of practice demand separate goals and evaluation methods. The items on the left describe less disturbed sites, the items on the right describe highly disturbed or, in the case of mitigation wetlands, lost sites. This range of goals (bottom text in each box) demands diverse theory and analysis. (It is assumed that the first step of restoration is to preserve land and conserve species wherever possible.)

The community of disciplines working in the area of restoration ecology necessitates respect for a diversity of knowledge, practice and pedagogy. The immediate future of restoration ecology will be defined by a struggle between discipline specific knowledge standards. The arts and humanities relish the idea of thinking about the foundation of knowledge, seeking new metaphors, narratives and shifts in human value. The sciences relish the idea of building on accepted foundation knowledge, seeking the empirical tools to understand, preserve, conserve and restore natural systems. This dynamic tension is essential if we are to achieve a new community of disciplines responsible for both a theoretical and applied knowledge, capable of addressing both rational and speculative approaches to a changing nature/culture relationship.

Restoration ecology with its attendant citizen/expert programmes and integration of nature/culture goes to the heart of fundamental environmental questions of the twenty-first century. Restoration ecology is an emergent community of disciplines. The form and theory of its social–aesthetic interface is as yet unrefined. There is both intellectual and aesthetic

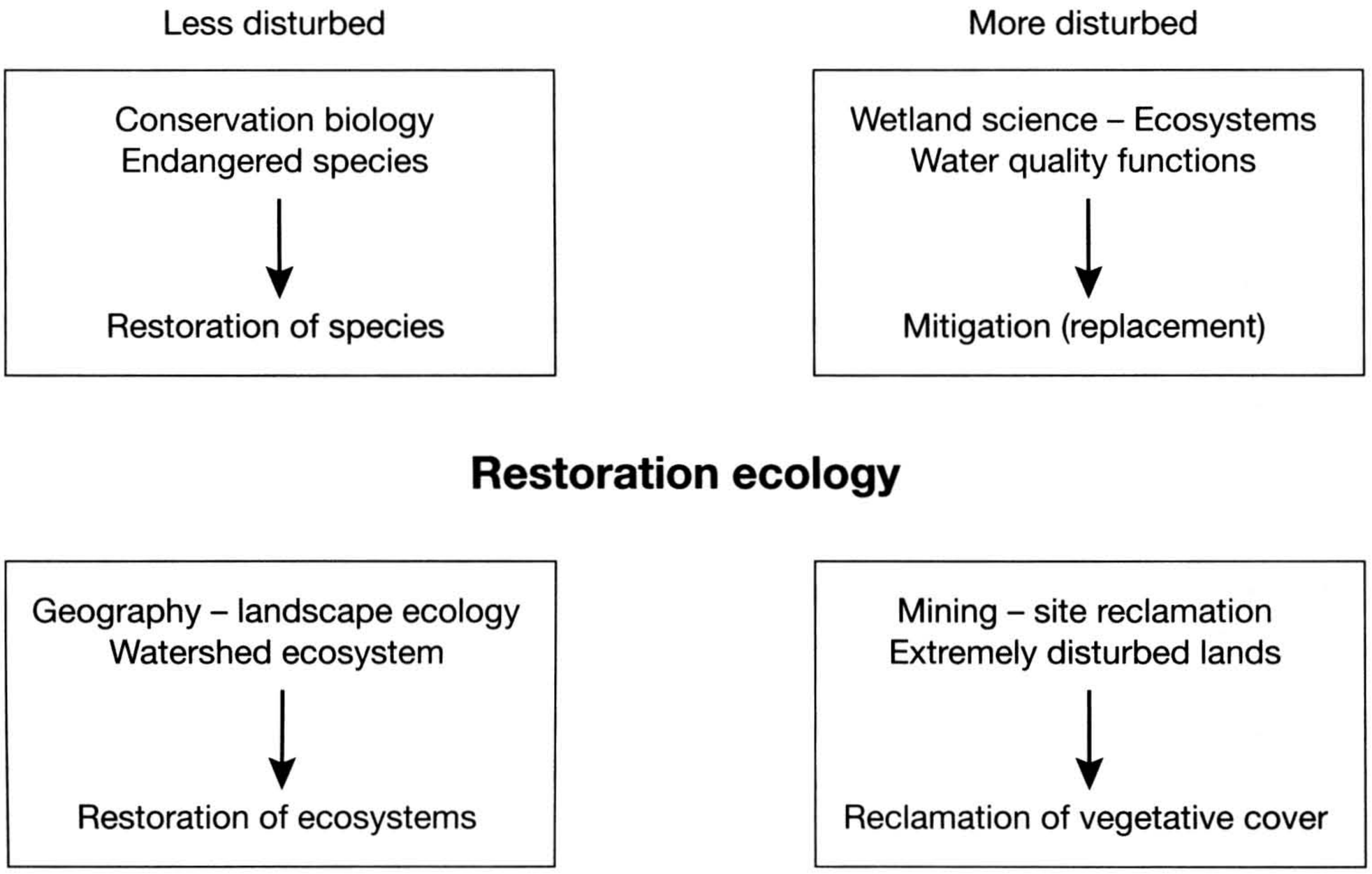

Figure 9.1 Restoration ecology: systems, disciplines, focus and goals (after Ehrenfeld, 2000)

space for artists to participate in this paradigmatic shift in nature/culture relationships.

CULTURAL ECOLOGIES

Background, art and landscape

Artists have worked with the nature/culture dichotomy for generations. Europe has a rich landscape painting tradition. In the seventeenth century Claude Lorrain painted Italian landscapes specifically chosen for their contextual references to Roman history. Intertwining images of nature and nostalgic culture, his work provided a primary source of ideas about pictorial framing. Nature was the formal setting to consider the ruins of Rome as picturesque elements of an experientially rich landscape. In the eighteenth century Thomas Cole, Frederick Edwin Church and John James Audubon were working in America, painting the wilderness and wildlife of the United States. The American painters illustrated pristine landscapes that were being newly tamed by the technology of the pioneers. With the advent of the modernist period of the twentieth century, the relevance of landscape as a subject began to fade. Painters were disinterested in subjects external to the media and its means of expression. The painter moved away from landscapes and other subjects external to the medium. The painter's effect on the meaning and perception of landscapes and nature diminished accordingly.

Earth-art

Sculpture's historical relationship to landscape is different from that of painting. It is only with the advent of the minimalist era of modernist sculpture in the 1960s that landscape began to play a sustained and primary role in sculptors' thinking.

John Beardsley, Thomas Hobbs and Lucy Lippard are the primary authors on the subject

of earth-art. Beardsley's (1977) *Probing the Earth: Contemporary Land Projects* and later (1984) *Earthworks and Beyond* provide the authoritative view on the originators of earth-art. Hobbs' (1981) *Robert Smithson: Sculpture* is the best reference on that artist's works and writing. Lucy Lippard's (1983) *Overlay* is a classic. It transcends the hierarchy of the art world as well as the ranks of the earth-artists, providing her readers with a comprehensive overview of diverse archaeological, historic and contemporary practices. Beardsely and Lippard both describe a post-studio inquiry and practice that integrates place, form and materials. The earth-artists engaged landscape directly, earth was the material, the form oriented the viewer to the place of the work. Earth-art challenged the purpose of art as a collectable object. In some ways it was the first artwork to go public, to establish art as an interface to the world.

Herbert Bayer, Walter De Maria, Michael Heizer, Nancy Holt, Mary Miss, Isamuu Noguchi and Dennis Oppenheimer were just some of the original practitioners that began working as earth-artists, or environmental sculptors. They experimented with simple geometric forms that integrated place, space, time and materials. The work ranged from pristine natural environments to post-industrial environments. Theorist-practitioners Robert Smithson, Nancy Holt and Robert Morris expressed a more integrated relationship to nature as system. Smithson was acutely aware of nature's entropic and eutrophic cycles, and embraced mining areas and quarries as the content and context for his work. Smithson's partner and colleague Nancy Holt was particularly interested in earth/sky relationships, creating works that updated ancient techniques with a modern sculptural vocabulary. Morris addressed post-industrial landscapes, in both form and theory. Writing about his own work in Kent, Washington, his articles about the ethical responsibility of artists working in post-industrial landscapes telegraph issues in restoration ecology, a decade later (Morris, 1979, 1993).

Ecosystem approaches

At the same time, another group of artists emerged with a focused interest in systems theory and ecology. Hans Haacke, Helen Mayer Harrison and Newton Harrison, Alan Sonfist, and Agnes Denes were the original (and continuing) practitioners. They differed from the earth-artists by their interest in dynamic living systems. Where the earth-artists expressed themselves in the landscape, these ecological artists were interested in collaborating with nature and ecology to develop integrated concepts, images and metaphors. While earth-art was the first to go public, these ecological artists were the first to act in the greater interest of nature and the commons. In 1974 Jack Burnham wrote *Great Western Salt Works*, an important book that developed an initial approach to systems aesthetics.

Alan Sonfist (1983) edited *Art in the Land*, a selection of texts which addressed the scope and range of artists working in relationship to environment at that time. In 1992 Barbara Matilsky curated *Fragile Ecologies*. Matilsky's catalogue provides an excellent overview of the historic precedents for this work, as well as some of the most important work of the first and second generation of ecological artists. A text edited by Bylai Oakes (1995), *Sculpting with the Environment*, is unique, and quite valuable as a reference in that he asked each artist to write about their own work. *Land and Environmental Art*, an international survey of both types of artists' projects, was edited by Jeffery Kastner with a survey of writing on the subject by Brian Wallis (Kastner and Wallis, 1998). The text goes into the first, second and third generations of earth and ecological artists, providing an overview of works and accompanying articles. In 1999 Heike Strelow curated *Natural Reality*, an international overview which expanded the concept of ecological art and its range of effort to include the human body as a site of 'natural' inquiry. The accompanying exhibition catalogue provides arguments for the three areas of the exhibition,

the unity of humanity and nature, artists as natural and cultural scientists and nature in a social context.

ART AND RADICAL ECOLOGY

Ecological art, or eco-art, is a creative process that results in interface between natural systems and human culture. It is manifest in form, concept and focused experience. It recognises the historic dichotomy between nature and culture and works towards healing the human relationship to the natural world and its ecosystems.

A set of goals (broad intentions):

- eco-art is a compassionate advocacy for natural communities;
- eco-art addresses damage to diversity and dynamics of ecosystems;
- eco-art is an expression of value, in such it is transformative by intent;
- eco-art seeks to balance the technical with the biological and ecological;
- eco-art seeks legal rights, and appropriate advocacy for natural systems.

Objectives (metrics for project analysis):

- interdisciplinary knowledge or participation from other disciplines;
- strategic actions targeting specific communities (human and natural);
- aesthetic and scientific components that are open to supplementary response;
- an integrated, conceptually informed aesthetic experience of complex systems.

Theory and interdiscipline

In *Fragile Ecologies* (1992) Barbara Matilsky provides a robust historical context for ecological artworks. As a contemporary curator, she was interested in form and content, how the product of ecological art presented itself to the world, specifically the art world. As eco-artists and theorist, we are interested in form and content, but I am also interested in the concepts and theories that inform and sustain the practice. We would argue after Harrison and Sonfist (Auping, 1983: 99) that eco-art is fundamentally interdisciplinary, in that we can't rely on the art world as the only point of engagement and interpretation. Furthermore, the artists involved in this practice can't confine their learning or production to art. We must reach out across disciplines to build a platform of knowledge and practice. In the interdisciplinary model, artists find critical social space to expand their practice by moving outside their discipline and its institutionalised relationship to society. In this way, we find opportunities both intellectual and creative that we cannot find within our own discipline (which like other disciplines has turned inward upon itself). Interdisciplinary practice breaks the form of discipline-specific institutions. It expands the combined disciplines and provides the artist with a new path to social engagement. Inherent in that path is the responsibility for the artist to educate him/herself in both disciplines. In turn, the work needs to be received and evaluated for the totality of its intention.

Dualities

The environmental movement can be characterised by a struggle between the oppositional ideas of nature as an autonomous and intrinsically valuable entity unto itself versus nature as both a concept and focus of human exploitation for economic value. The social-ecologist Murray Bookchin (1974: xv) sets up a simple duality, to help us understand these ideas better: 'Ecologism refers to a broad, philosophical, almost spiritual, outlook toward humanity's relationship to the natural world . . . environmentalism [which is] a form of natural engineering seeks to manipulate nature as a mere "natural resource" with minimal pollution and public outcry.' Bookchin's philosophical position on ecologism and environmentalism reflects the earlier discussions of preservation and conservation. But what does this mean for artists? Ecologism provides artists a pathway

into a new area of knowledge. In that broad philosophical/spiritual outlook there is plenty of room for artists to experiment with interface, perception and human values. We want to think of interface as a common boundary or interconnection between systems, equipment, concepts or human beings. Interface is the art, the physical manifestation of that 'relationship between humanity and the natural world'. The concept of interface is appropriately open, its form undetermined but its intention explicit, it defines the art of ecology without closing out its options. Perception is the awareness of interface or awareness through interface. Human values are the target, or goal, of cultural agents (the active role of agency is assumed under the interdisciplinary model). Eco-artists manipulate the attendant metaphors, symbols and narratives of the nature/culture interface to shift human perceptions around the dual subjects of their inquiry, research and production – affecting valuation. These are the strategic points of engagement for the eco-artist – interface, perception and human values.

The philosophies

It is important to understand the philosophies that can inform our actions. Where do the eco-artists stand in relation to nature? We can broadly situate the eco-artist in either the wilderness or the garden. This simple duality allows us to consider wilderness as the condition of nature without human impact, and garden as the human condition (or city condition) of nature. Our value systems can flow in either direction. If value is centred in the garden, then it is the use of nature that drives our actions. The garden relationship assumes that we are above nature and capable of some charitable (and not so charitable) contributions to nature. If value is centred in the wilderness then it is the maintenance of that boundary separating humanity from nature that drives our actions. Wilderness (by strict definition) is a condition that can be defended, defined or interpreted but never improved upon by human action.

Human actions now affect global climate; this is an essential awareness of the post-industrial condition. Carbon-based industrial by-products and a lack of effective human advocacy threaten nature. The human effect on the planet has become so great that we have begun to examine carefully the human condition and its intellectual (and psychological) relationship to nature. Three philosophies have emerged which inform a continuum of human thought and action in relationship to garden and wilderness ideas – social ecology, eco-feminism and deep ecology. These three ecologies share a common thread – the negative effect of human civilisation upon natural systems has instigated the need for various radical communities to seek a path to action.

Social ecology calls for a grand decentralisation scheme, with a move to smaller cities, and appropriate technologies. It seeks a balance with nature and an equitable 'human footprint' on the planet. This is the broadest of our three eco-philosophies, firmly rooted in the garden but respectful of wilderness. Social ecology claims a spatial allegiance to city, town and country, believing that nature is a fundamentally human concept that must be resolved in a social setting. Industrial economies, politics and urban forms all must change if we are to achieve an ethical and sustainable relationship to nature and our remaining wilderness lands. The approach is built upon a powerful critique of the oppressive nature of industrial-capitalist society.

Eco-feminism examines the historical relationship between women and nature. Eco-feminism claims no spatial allegiance; the focus is upon the biological relationship between humanity and nature. The eco-feminist reveres wilderness, but the eco-feminist project is still garden, it is focused upon resolving humanity's inequitable relationship to nature. The argument is that dominant (male) culture, in its role of master with dominion over all, is unable to acknowledge its dependency upon nature, which has culminated in a threat to survival. 'We must find a form which encourages sensitivity to the conditions under which we exist on

the earth, which recognizes and accommodates the denied relationship of dependency and enables us to acknowledge our debt to the sustaining others of the earth' (Plumwood, 1993: 198). The eco-feminist approach is built upon a critique of the oppressive nature of an inherently masculine society.

Finally, deep ecology recognises the intrinsic value of non-human nature. In terms of our garden/wilderness metaphor, it is explicitly wilderness. It declares a lack of critical knowledge in the context of increasingly complex worldwide ecological catastrophes. In this vacuum of rational eco-knowledge it demands an advocacy and activism based on philosophical principles. Deep ecology is bio-centric; it recognises the value of all living things and emphasises non-interference in natural processes: 'The flourishing of human and non-human life on Earth has intrinsic value. The value of non-human life forms is independent of the usefulness these may have for narrow human purposes' (Naess, 1989: 29). The deep ecology approach privileges nature and places humanity on a co-dependent footing. It declares the human interference in nature excessive and calls for a substantial decrease in human population. The deep ecology approach is the most radical of the three ecologies; it is built upon a critique of materialism and technological progress. It obligates action through a dynamic platform first developed by Arne Naess (Naess, 1989) and George Sessions (Sessions, 1995).

These three philosophies, with their spatial commitment to city, town, country or wilderness, and their political commitments to humanity, post-dominion humanity and the intrinsic rights of nature itself, provide a broad intellectual foundation for the eco-artist. This is a foundation of human values that project ways to understand and act in relationship to nature. This foundation provides room for a range of practitioners with a shared interest in the roles that art can take in the changing human relationship to natural systems. The founda-tion can accommodate the artist as witness, advocate or activist, but always as an agent of change in the shifting values of nature and culture. As I have said earlier, the strategic points of engagement for the eco-artist are interface, perception and human values. It is through human values that we know nature, it is through human values that artists act upon culture to change the perception of nature.

Eco-art and paradigmatic change

Restoration ecology is the only applied ecological programme that integrates city, town, country and wilderness. It is the only applied ecology that is equipped to address all three political programmes, of humanity in nature, post-dominion humanity and the intrinsic rights of nature (although most deep ecologists would disavow the restoration ecology programme as too manipulative). Restoration ecology integrates preservation and conservation in its scope of activity. The all-too-obvious challenges (and costs) of restoring complex ecosystems and landscapes dictate the use of stabilising methodologies (preserve/conserve) before any attempt is made to restore.

Restoration ecology is the emerging paradigmatic relationship of humanity to nature. It addresses the full range of philosophical, spatial and political constructs outlined so far. More importantly, restoration ecology is a community of disciplines, which recognises its role in the context of cultural values. If we are going to restore nature (the underlying goal of all three of our philosophies), we must engage nature as a primary human value which we feel responsibility for. Responsibility flows from intimacy. Jordan speaks of it as an ecological version of healing. Light declares its democratic potential. Restoration ecology redirects the age-old concepts of agriculture and gardening, which reaped benefit from nature, to a programme of caring experimentation with/for nature (healing). Restoration ecology emerges from a culture that recognises its effect on nature, and is just now beginning to understand and act upon the problem. While there are conflicting opinions about how best to take responsibility,

we believe that intimate knowledge is the primary place to start.

We have argued in the past that we must seek the aesthetic properties (the interface) which define the perception of complex ecosystems. With intimate knowledge we can characterise those properties (after Eaton, 1997: 85–105) as health. Ecological restoration begins the intimate dialogue with nature that will allow us to internalise and define that aesthetic perception. The ecological humanists and artists are faced with the challenge of understanding this aesthetic property, and communicating it to the broadest segment of society. Imagine being so intimately aware of your bio-region that you can ascertain its health by an aesthetic understanding of its complex form. An odd idea, until you think about family, friends and pets – you can 'see' illness in them before you know they are sick. Or your car, computer or some other appliance that you use daily, and in some strange way, you know it is unhealthy, breaking down before it stops working. The perception of health is a multi-sensual mix of signals, which have an appropriate rhythm or pattern. When that pattern or rhythm is amiss, it is clear that the health of that perceived system is compromised. The recognition and definition of aesthetic health within a perceived ecosystem goes directly to our questions of interface, perception and human value.

We would argue that the most important culmination of the project of eco-art, of our three philosophies and applied ecologies, will be legal rights for nature. Within our capitalist democracy the courts provide the ultimate notice of change in human value. Guaranteeing the rights of nature would extend the essential rights of political and economic equality. Recognising nature as an important third leg of democratic society is a logical and essential next step. This is an idea which has been considered in the past.

In 1972, Supreme Court Justice William O. Douglas (Stone, 1972: 74–5) offered the dissenting opinion on a legal case brought against Disney Inc., in support of a grove of trees in California: 'The ordinary corporation is a "person" for purposes of adjudicatory processes, whether it represents proprietary, spiritual, aesthetic, or charitable causes. So it should be as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swampland or even air that feels the destructive pressures of modern technology and modern life.' While we may initially consider the rights of nature an outrageous idea this question is a little less shocking to think about when we remember that 150 years ago the legal status of women and various cultural groups were considered radical and upsetting thoughts. Corporations, merchant marine vessels, comatose humans, and babies all have rights, based on advocacy by invested interest. Why couldn't we extend these basic legal rights to natural ecosystems? A legal interface for nature fundamentally changes perception and value within a specific society and culture. We would argue that without the ability to advocate legally for natural systems, the political and economic systems of democratic nations will never be moved towards a sustainable model. If we can empower this advocacy, we guarantee an era of creative change and renewed democracy.

CONCLUSION

We have attempted to outline a manifesto of eco-art that recognises the emergent restoration ecology paradigm. We have developed a programme with definition, direction, intention and interdisciplinary goals in mind. We have argued that the bridge between areas of knowledge and the focus on issues of the public realm can be fertile ground for both academic and applied research. We have argued the importance of engaging issues, from the rights of nature to the properties, or aesthetic, of perceived health. The arts is the discipline that most consistently questions the foundation knowledge of society. In a culture dominated by science (which defends foundation knowledge), the arts have to develop new critical and strategic tools to act upon society. We need to create a supportive interdisciplinary community

of creative individuals that are committed to, and take responsibility for, positive shifts in culture.

- Eco-art is a compassionate advocate for natural communities.
- Eco-art addresses damages to diversity and the dynamics of ecosystems.
- Eco-art is an expression of value; in such it is transformative by intent.
- Eco-art seeks to balance the technical with the biological and ecological.
- Eco-art seeks constitutional rights, and appropriate advocacy, for natural systems.

the world that everyone sees is not the world,
but a world which we bring forth with others.
(Marturana and Varela, 1987: 245)

RECOMMENDED TEXTS

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