

SCALE – TIME – COMPLEXITY: ENGAGING, ENTANGLING, AND COMMUNICATING ECOLOGY

Nigel Jamieson, Andrew Denton, and Stephen Reay

AUT UNIVERSITY, AUCKLAND

ABSTRACT

This project proposes a forum for discussion that questions how we engage with our ecology. The panel will be framed within an acknowledgment of scale, time, and complexity as an entry point into a conversation about our local ecology and the universe beyond. The panellists' aim to initiate a dialogue by situating the discussion around their own art and design research practices. These practices have emerged from local investigations into ecological issues that evolved into two overlapping research clusters, Art and Ecology, and Design and Innovation for Sustainability, at AUT University, in Auckland New Zealand. In our first collaborative project we explore how we might connect with and communicate 'ecology', in methods and practice that recognize and embrace scale, time, and complexity as a tactic into the subject, rather than as a barrier to engagement and the development of potential solutions.

How do we engage and communicate with the ecology in methods that acknowledge and embrace scale, time, and complexity as a tactic into the subject, rather than as a barrier to engagement with it?

The panellists approach this through diverse and divergent methodologies, from data visualisation, affective or poetic cinema, to human centred design practices. The subject of the ecology binds the discussion with the acknowledgement of no single path of interrogation into the subject. Jamieson, Denton, and Reay, have initiated a project that centers its focus on the ecology to develop overlapping pathways in and out of their distinct practices, as a method of both developing and interrogating their work, making new work that drifts across their disciplines, but also building towards an ongoing and evolving interdisciplinary teaching and research projects.

1. Digital Earth Project

The concept of a digital replica of the entire earth was first proposed by Al Gore in 1992. What then might have seemed like a scenario from science fiction can now, with scientific and technological advances in many fields, be not only feasible, but practical solutions are currently being sought to achieve this vision. The first international symposium on Digital Earth was held in Beijing in 1999 and has since been held bi-annually in Canada, the Czech Republic, Japan, USA, and Australia. *The International Society of Digital Earth* (ISDE) was established in 2006 and *The International Journal of Digital Earth* was launched in 2008. The goal of this massive project, which simulates

the surface and near surface of the earth, is to help illustrate and hopefully ameliorate, many of earth's problems -including climate change, hunger, natural disasters, and even warfare - through the sharing of scientific information and the engagement of a global public audience. It is through this global public engagement, by providing a readily accessible model of earth's systems to virtually anyone with a computer, that the science and debate of addressing these problems can be shared. It is in this process of public engagement that the humanities and specifically art can play an important role. It is in this sense that Digital Earth becomes a starting point for aesthetics research and collaborative art practice.

2. Data Visualisation

Since the 1990's data visualisation has become a familiar feature of the new media art landscape. By accessing data sets from many sources – stock market fluctuations, weather and climate data, internet network traffic – artists have been able to exploit two of the distinguishing characteristics of digital computing; the ability of computers to handle large data sets and the nature of digital information to easily be mapped from one representational form onto another. Cross-representational media mapping of this kind enables media of one form to take on the characteristic form of another; this can be turning an image into a sound wave, or the other way around, creating a 3D surface from a 2D image, and so forth. This form of re-mapping of multiple representational forms onto each other, along with the computing of large datasets, creates the practical conditions for data visualisation in new media art. This relatively new cultural form of data visualisation becomes the methodological foundation for this Digital Earth project, specifically using real-time 3D graphical responses to large data sets in real-time, near to real-time and simulation time.

3. Communicating the Ecology

Denton's current research project, *Affective Moving Image and the Ecology*, works with the belief that fear-inducing documentary and media coverage polarizes popular opinion around threats to the ecology and our role in it. The project suggests a more poetic¹ or affective² mode might be a more feasible tactic for advancing the debates about anthropomorphic climate change. The project proposes that due to the absence or invisibility that surrounds many ecological subjects – whether they are antagonists or protagonists in the narrative – they are often seen as intangible, or unfathomable, mere data devoid of the possibilities of establishing an emotional or affective relationship with the ecology.

To reflect on this, *in praxis*, the studio work encompasses numerous moving image technologies, from consumer cameras, to professional media devices, analogue and digital, with an aim to apply pressure to these technologies in order to develop visual material that fulfils the projects aesthetic aims – To experiment with affective moving image content in order to develop connections with the viewer to the ecological subject that is emotional or even poetic.

Terminal/Traces, is a two-channel video and audio installation. The work engages with the ecology and our place

in it by looking from its subject from a distance abstracted and forensically, through the application of time-lapse cinematography and composited images. The work is made up of many visual and aural layers, to present a dynamic and spectacular composition, which will engage viewers with the project's ecological subject. The images that make up the work were captured using Canon 5D DSLR cameras; set to take long exposures, sequentially, of the night sky under flight paths, or at the perimeter of airports. The cameras records images in the RAW format at extremely high-resolutions.

On channel-one, planes fly over the lens and lines of light spill from the aircraft, streaking across the sensors, as they capture the image – like scratches on a record. In the final iteration, ghost-like traces of the airliners criss-cross the sky, as they leave discarded jet stream and light.



Figure 1. A. Denton 2012

The second channel experiments with different modes of abstraction, while capturing the departures and arrivals of aircraft at various airports. In the post-production process time and space has been manipulated and composited into multiple layers, to accentuate and announce, the volume of air travel via traces of light across mercury lamp lit skies.

These collections of aircraft traces are layered upon each other until they build into a cacophony of visual noise. The screen speaks to the impact these machines have on our planet, an impact that is so absent or invisible from our normal experience or viewpoint, now iterated. It makes those things that we live with everyday – those things outside of sight and mind – conscious.

Morton³ and McKibben⁴ propose that rather than slip into a fugue of disengagement and inaction, due to the complexity of the ecological problem, that instead we could embrace and draw on complexity as a tactic into the subject and towards action. A complex problem requires a complex engagement – but not necessary a complex communication. It is suggested that an engagement that draws the viewer into the affective poetic potential of the subject, in order to reconnect and dispense of cynical apathy, is a rewarding tactic into the ecological subject.

In S 36° 44' 18" E 174° 36' 24", Denton and Reay collaborated to produce a two channel video installation of an exotic plantation forestry site near Auckland, New Zealand, that responds to Morton and McKibben's projects. They recorded, on video and audio, the same geographical location twice, locating it through the GPS co-ordinates. The first shoot took place in the midst of a mature pine stand, the second shoot, several months post harvest. The juxtaposition of the two dramatically different images side by side provide provocation for discussion around the ecological and social complexities of planted exotic forest ecosystems. The work aims to agitate a reaction to the before and after effect of the logging of the trees from a fixed position looking up. In addition the intention of the work was provoke a viewer to question whether or not the subject is actually a forest at all. The "here it is, now here it isn't" nature of the installation effectively communicates the sense of loss, with viewers reactions emotive and



Figure 2. A. Denton, S. Reay, 2012

contemplative. Perhaps the most resonant aspect of the work is a tiny moment of audio in the piece that penetrates the visuals. Through the birds and the sound of the wind, you can hear a single instance of a human voice calling. It is a sad sound, almost a lament, not the buzzing of a chain-saw⁵, but a reminder of human presence – the ever-present human presence. This accidental moment perhaps captures what is most affective about this project.

5. Design Approaches: Communicating the Ecology through Intervention – The Wall Project

Attempts to engage urban viewers with ecology are being further explored through an applied ecological art project "designing walls as urban ecosystems", an inter-disciplinary approach to explore a range of potential design solutions by bringing technology and science (in particular the fields of biology and ecology) with design. A Design Thinking approach was used to explore opportunities associated with designing for urban and natural environments to increase the awareness and understanding of issues centred on sustainability, framed in the context of understanding ecological systems.

The project documents the research and design of a 3D ceramic wall tile to be used as a boundary structure, and habitat for plant and animal species. In its initial installed state the wall represented an aesthetically appealing clean

and simple structure. Over time this structure will weather, and will start to 'wear' as biological entities colonize, transforming the wall into a dynamic ecosystem that supports on-going ecological activity. A section (2.4m x 1.2m) of wall has been installed along a boundary of a suburban Auckland Primary School. It is highly visible and accessible to urban people as an ecological design project to help foster a re-connection with nature and increase awareness of ecosystem processes, as well as support local biodiversity in a novel way. Ongoing monitoring of ecological activity, as well as how the local community is interacting with the installation, is being assessed. A forensic analysis of the deterioration of the ceramic tiles and the subsequent development of an ecosystem is being undertaken using a permanently mounted Ricoh GX200, with an interval setting of one hour. The images taken at were removed as being distracting, before a time-lapse sequence compresses months of activity into a couple of



Figure 3. S. Reay, 2011

minutes. The intention of the work is to provoke the viewer into contemplating the temporal scale of ecological activity, as well as consider the dynamic nature of ecosystems.

This project provides a unique opportunity to explore the potential of artificial structures to support biodiversity in urban environments. The project intends to communicate the importance of intact, fully functional ecosystems as highly complex, dynamic and unpredictable biological systems crucial to maintaining the human condition.

6. Conclusion - Locating the Discussion in the Backyard

This panel presentation provides an opportunity to engage in inter-disciplinary conversations that investigate the meaning of ecology as it relates to the panellist's urban New Zealand context.⁷ New Zealand is a relatively young country, however, it has a substantial natural and cultural history. There is a perception locally and internationally that this island nation is clean and green. However, as a small, dynamic, intensely free market country, we are becoming increasingly urbanized in a fashion that is rapidly changing our social, cultural, and political structures.

Rapid anthropomorphic climate change is only one tangible example of the alienation most populations have in

relation to 'natural' environments and the ecology that supports all life – not just human. As Meurk and Swaffield, and Ignatieva et al announce, for biodiversity to become more culturally relevant, and therefore valued by communities, perhaps requires it to be more visible and accessible to those communities. It is suggested that it is necessary for city dwellers to first engage with the vast ecological narrative surrounding them, before they can become connected to it, and ultimately care about what happens to it.

In this context are we simultaneously detached from the ecology and regard it merely as a resource for our use and exploitation? Under these conditions, how can we adjust our concept of value to include and celebrate in the temporal scale, actual scale, and complexity of the ecology? And to then acknowledge the challenges that it faces as both a method of inquiry and a proposition for designing future sustainable living. Further to this - how do we deliver effective and potentially affective communication of ecological issues, and potential solutions, that are engaging, devoid of cynicism, and ultimately encourage action and acknowledge the importance of 'natural' environments in our lives?

ENDNOTES

1. As Morton notes: "Art's ambiguous, vague qualities will help us think things that remain difficult to put into words. Reading poetry won't save the planet. Sound science and progressive social policies will do that. But art can allow us to glimpse beings that exist beyond or between our normal categories." (60)
2. As Massumi proposes in his discussion on affect in his analysis of aspects of Reagan's presidency: "Philosophies of affect, potential, and actualization may aid in finding counter-tactics. The Autonomy of Affect" (106) It is proposed these tactics of affect might be applied to communicating the ecology.
3. Please see Morton's *The Ecological Thought* for a more detailed discussion.
4. And see McKibben's *End of Nature and Eearth*
5. McKibben contemplates in the *End of Nature* "Now that we have changed the most basic forces around us, the noise of the chain-saw will always be in the woods." (43)

WORKS CITED

- Ignatieva, M., Meurk, C., van Roon, M., Simcock, R. & Stewart, G. "How to Put Nature into our Neighbourhoods: Application of Low Impact Urban Design and Development (LIUDD) Principles, with a Biodiversity Focus, for New Zealand Developers and Homeowners." Landcare Research Science Series, No. 35. Manaaki Whenua Press, New Zealand. 2008.
- Massumi, Brian. "The Autonomy of Affect," *Cultural Critique* No. 31: The Politics of Systems and Environments, Part II (Autumn, 1995), pp. 83-109
- McKibben, Bill. *Eearth: Making a Life on a Tough New Planet*. 1st ed. New York: Time Books, 2010. ---*The End of Nature*. 1st Anchor Books ed. New York: Anchor Books, 1990.
- Meurk, C.D. & Swaffield, S.R. 2000. "A landscape ecological framework for indigenous regeneration in rural New Zealand-Aotearoa." *Landscape and Urban Planning* 50: 129-144.
- Morton, Timothy. *The Ecological Thought*. Cambridge, Mass.: Harvard University Press, 2010.