

Fallen

John Pusateri

essays by:

John Early

Dan Blanchon &

Mel Galbraith



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Preface

John Pusateri

April 2008

This publication is a summation of my involvement in a NZ biodiversity research project- 'Fallen'.

My interest in invertebrates began with a project in 2006 entitled 'Quiet.' It was an exhibition that documented invertebrates from my own garden. The project aroused an interest in this subject and I was passionate to ensure that my time and energy spent collecting and documenting might contribute to more than my art practice alone. In 2007, I applied for an internal Unitec research grant and was successful.

At this point it was necessary to secure sound scientific input; a friend recommended Dr Dan Blanchon and it was not long before he became fully involved as a collaborating researcher. Dan contributed monthly seed-rain collections (including seed-bank samples), soil moisture samples, fruiting and flowering recordings, and general flora identification for both sites. He also brought Mel Galbraith in to advise on the study's overall ecological merit, and to conduct monthly bird-counts. The three of us worked out an overall methodology, part of which involved the collection of twenty-four pit-fall traps divided between two sites—native (Laingholm)/invasive (Jaggers Bush). John Early has, from the outset, provided valuable advice on the use of pitfall traps, preserving solutions, and matters concerning the project in general.

The project commenced with the first traps being set on 8 May 2007. Twice a month for the past year, I have gathered, separated, cleaned, labelled and preserved the trapped specimens. The specimen samples, as a collated whole, along with additional information gathered for the project, provide valuable baseline data that will clarify a sustainable approach to replanting native bush where invasive bush is prevalent.

The selected artwork in this publication is from a series also titled “Fallen”. The work, comprised of 12 photographic images and 4 graphite drawings, was shown at Seed Gallery, Auckland, November 2007.

John Early, Curator of Entomology, Auckland War Memorial Museum, and Dan Blanchon & Mel Galbraith, Senior Lecturers in the School of Natural Sciences, Unitec New Zealand, wrote the included essays. I am privileged to be able to present these with my artwork.

Speakers for the Dead

by John Early, Curator of Entomology
Auckland War Memorial Museum

The last word in ignorance is the man who says of an animal or plant “What good is it?”

Aldo Leopold, Round River, 1953

I am a taxonomist, a classifier of insects, who has a predilection for the microscopically small. Once, when still a postgraduate student, I heard an academic specialising in microscopic parasitic roundworms proclaiming his preference for animals he couldn't pat or kick. I had complete sympathy with this, for I was developing an interest in small parasitic wasps where anything over 5 millimetres long was a giant. I am also a field biologist, and the pleasure of going out into the wild, hunting for insects on their own patch, is immense. When returning from the field with a sample of trapped insects, just as John Pusateri did, there is a sense of anticipation. What have I caught? What lives in this particular place? Will there be a rich array of different species, or only a few? What can they tell us about their habitat? Are there any unusual species indicating a habitat we need to preserve, a biodiversity hotspot?



The soup of insects lies in a concentrated sludge at the bottom of the jar, pickled in preservative and awaiting identification. There may be a few larger things that are recognizable to the naked eye – some spiders or beetles, a weta or two, perhaps – but most are tiny and don't yield their secrets easily. Once poured out into a shallow dish and seen under the microscope, these miniature creatures come into their own with a myriad of shapes, forms, colour and texture, each one displaying the beauty of perfection in a different way. The simple act of magnifying and illuminating these creatures opens up a whole new world, the teeming microcosm in the dead leaves and soil beneath our feet as we walk through the bush. It elicits a sense of mystery and wonder. Albert Einstein once said, "The most beautiful thing we can experience is the mysterious. It is the source of all art and science". In this collection of photographs and drawings the artist brings us to that intersection.

It's a natural reaction to marvel at their sheer diversity and richness, their otherness, each form with its own peculiar beauty. Living things have always done this, and a natural human response is to depict them in art, as objects of beauty and wonder, or as metaphors suggestive of deeper meaning. The butterfly symbolizes transformation, fragility, delicacy, beauty, innocence, freedom. Spiders, worms and creeping beetles are often used to represent something darker, if not the diabolical then certainly death and decay. John Pusateri's collecting method selects the small creeping things from underfoot, yet here they certainly don't suggest the more sinister traditional messages they may once have done. Portrayed in his photographic montage images they have a lightness. Some, like the delicate parasitic wasp in *Week twenty three*, (iii), seem to float or even fly in the darkness in contrast to the enigmatic discarded fragments of glass and shards of domestic crockery. For a while they seem liberated, brought to life again by the artist, but like the spiders in *Collection one* and *Collection two*, (ii, i), they too will eventually fall to rest undisturbed in their grave, the colour seeping out of them and the organic detritus from whence they came, to impart the soft amber twilight in the biologist's embalming fluid. In a way they are potent reminders of our own mortality and precarious existence on this earth. *Memento mori*.



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In the montaged photographs, the placement of an animal with a fragment of something of human origin contrasts the living world with the inanimate but a more powerful message lies in the similarities. Like the animals, each fragment is beautiful and fascinating but not much use on its own; its meaning and purpose rely on the object from which it came. So too, each tiny creature cannot survive on its own; the living functioning ecosystem relies on all playing their part together.



When dealing with biological samples from a scientific study, the first question the scientist asks is ‘what species is this?’ The answer has the power to unlock all sorts of information. But all too often we are confronted with the irony of being able to answer this basic question only at a very crude level. Often all we can say is that ‘it’s this general sort of thing, a member of this family’ but we can’t give it its full classification to the species level because scientific knowledge of many of these animals is in its infancy. They haven’t been fully classified to allow this level of identification. Yet here they are, tiny and in some ways insignificant, yet exerting a power over us by defying the forces of registration and human-imposed order. I have heard it said that it would be a pity to name and document every species of life on Earth, that the cold hard light of science will remove all mystery surrounding them. But in my experience that doesn’t happen, for, with every branch of science, in the answering of each question another 10 are posed: What’s its role in the system? What does it feed on? How do these species interact with each other? Why is one covered with velvety hairs, while another is spiny? Why does one have bulky body and stocky legs like a tiny Olympic weightlifter, while others have the elongated and gracile form of a runner? The questions are endless and so much is still unknown. The mystery remains.



The second irony is that the scientific documentation of life on earth, usually with the goal of preserving the species, requires the death of some individuals. The scientist needs the detailed microscopic examination to answer the first question of identity, and unfortunately this can only be done on a dead specimen. A scientific study is the source of the insects and other creatures you see here. Their bodies, fully documented, will remain in the collection of a museum or research institution as hard evidence that can be examined by generations of researchers to come, verifying that these species lived in this particular place and time.

The battles for biological conservation marshal evidence and facts with an undeniable logic, yet this is often insufficient to win the day. It seems that as humans we need more than this, that the cause needs to appeal to faculties other than rationality. In this body of work, the artist has let the dead creatures speak – of beauty, of transience, of fragility and mortality, of fragmentation and isolation – appealing to our hearts as much as to our minds. This message is echoed by the glass and ceramic fragments. The dead creatures are eloquent, and speak powerfully with substance and content beyond their initial aesthetic allure. They are more than just objects of beauty for our private enjoyment, to be forgotten when we have no further use for them. If that were all, it would be to trivialize them. In their deaths they also speak on behalf of others of their kind, prompting us to ask questions and to regard them in a different way.

Biographical notes

John Early trained as a zoologist at the University of Canterbury in the 1970s and became utterly captivated by small parasitic wasps when doing postgraduate research. He tutored in the Entomology Department of Lincoln University for 13 years before taking his present position as Curator of Entomology at the Auckland War Memorial Museum. His research interests still lie in the taxonomy of native parasitic wasps, their contribution to New Zealand's unique flora and fauna and their place in a global context. Other interests are playing chamber music, calligraphy and medieval illumination, and he is not averse to a convivial evening over a bottle of wine or malt whiskey.



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viii



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x



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Works Included

Archival digital prints
cotton paper, 378x457mm

- i Collection two
- ii Collection one
- iii Week twenty-three
- iv Week eleven
- v Week seven
- vi Week fourteen
- vii Week twenty-four
- viii Week eighteen
- ix Week thirteen
- x Week five
- xi Week eight

Beauty is in the Eye of the Beholder: *Biodiversity, biosecurity and the importance of perception*

By Dan Blanchon and Mel Galbraith, Senior Lecturers

School of Natural Sciences, Unitec New Zealand

Biodiversity is a contraction of the phrase “Biological Diversity” and is usually a concept used to describe the variability of life, whether at the genetic, species or ecosystem level, and including all life, whether on land, freshwater or in the sea.

Biodiversity, in one way or another, is the source of the many products (“goods”) that humans are dependent on for survival - albeit foods or textiles. Biodiversity also contributes to human society through the functioning of ecosystems that contribute to processes (“services”) that are a necessity for human survival, services including climate and water regulation, erosion control, soil formation and waste treatment.

Ecologists over the last decade have moved to demonstrating the importance of biodiversity through quantifying the goods and services (often referred to as ‘natural capital’) from an economic perspective. If the value of natural capital is perceived to have financial value, then the value of losing that capital can also be measured. Since human societies revolve around economic relationships, the economic measure of natural capital now provides an indicator of the importance of biodiversity to human society.

Biosecurity is the prevention or mitigation of invasion by alien species. The term may refer to border control (prevention of arrival) or control, management or eradication of species should they enter an area. The term covers the full spectrum of life found on Earth and may also encompass elements of human societies such as the economy and human health.

The invasion of alien species can cause serious ecological harm, which in turn can lead to significant economic losses and social disruption. Ecosystem services lost or degraded through loss of biodiversity or invasion of alien species may need to be restored or replaced by artificial means, often at a cost far greater than that involved in maintaining the biodiversity in the first place. For example, the cost of water treatment plants to purify water for drinking is far greater than the cost of maintaining riparian vegetation that supports a natural ecosystem that does this for free!

The study of both biodiversity and biosecurity must access the same disciplines. A strong knowledge of taxonomy is essential in the identification of invading alien species, but also in the documentation of rare native species. Ecology is the study of the relationship of organisms to the physical world and to each other. Thus, ecology is the research pathway available to us for exploring the role that biodiversity components play in the complexities of these relationships, and therefore how ecosystems function.



Invasion ecology is used to examine the vectors and pathways used by successful invasive species, to predict the likelihood of invasion, to model the spread and impact of the invasion and measure the success of any attempts at control or eradication.

The differences in the treatment of native vs non-native species is one of perception. Many non-native plants have an essential role in New Zealand. Agriculture depends on exotic pasture species and exotic grass-eating mammals; forestry depends on the Californian *Pinus radiata*; horticulture depends

on a wide range of non-native fruit and vegetable species and most parks and gardens are full of non-native plant species. Even the more invasive species are valued by some: willows are still valued for erosion control in some catchments. To further muddy the waters, New Zealand native plants can become invasive aliens in other countries. Our own pohutukawa (*Metrosideros excelsa*) is considered to be a pest plant in South Africa and ngaio (*Myoporum laetum*) is a pest in California.



Protection of native biodiversity usually means the removal of non-native biodiversity. What is not clear is whether there is a negative impact on native fauna and flora from this removal. Many woody weeds provide important sources of food and habitat to native fauna.

In conjunction with the exhibition this catalogue represents, a scientific study has been carried out, focusing on a woody invasive alien plant species (privet) that has formed a significant patch of “bush” that resembles native forest from a distance. This patch of bush, known as Jaggery Bush, is currently being replaced with native plantings.

European privet (*Ligustrum lucidum*) is a common woody invasive alien plant species in New Zealand, forming large monocultural stands that suppress native plants. Privet is also considered to be a respiratory allergen. It is controlled by local and regional councils with a range of methods, usually resulting in complete removal. A range of native and exotic bird species (particularly tui) are known to feed on privet fruits, which appear to provide an important winter food source. Other native birds such as grey warbler and fantail frequent Jaggery Bush; native skinks have also been observed. An iconic invertebrate, the puriri moth (*Aenetus virescens*), uses around 60 tree species, including the privet, as a host for its caterpillar stage. The

caterpillars tunnel into the trunk of the tree, and take about 5 years to complete development. If the host tree is felled, they are unlikely to complete development into the adult moth.

Conclusion

One solution to deal with this apparent clash between native and exotic biodiversity would be to remove the privet without negatively impacting on the native fauna that depends upon it for food and shelter. The current management regime is to remove the privet slowly and in sections, usually with extensive plantings of native plants both before and after tree removal. The plantings contain fruit-bearing species such as karamu (*Coprosma robusta* and *C. lucida*), puriri (*Vitex lucens*) and kawakawa (*Macropiper excelsum*) which will provide food for birds. Privet logs are being left on site. These will, and are, providing habitat for invertebrates and lizards.

Although privet does provide resources for some native species, this benefit may be limited to a few species and may only be at certain times of the year. Replacement of privet with a range of native plants not only increases species biodiversity, but also increases the availability of resources (particularly to birds) on a seasonal basis, which in turn supports a greater range of native biodiversity.

A loss of biodiversity during the transition from exotic to native plantings is likely, but, providing the transition is on a slowly rolling front, the impact is likely to be minimal, and countered by a net biodiversity gain once transition is complete.

Biographical Notes

Mel Galbraith

Mel is a Senior Lecturer in biodiversity, ecology and biosecurity in the School of Natural Sciences at Unitec New Zealand. He is active in the Ecological Society of New Zealand (Council member), Ornithological Society of New Zealand (Regional Representative, Auckland), Supporters of Tiritiri Matangi (Biodiversity subcommittee) and the Uruamo Ecological Society (Chairperson). He is also a past member of the Auckland Conservation Board (1998-2004).

Mel has always had an interest in natural history, especially ornithology and herpetology, which he formalised through study at the University of Auckland. This has led to involvement in many ecological restoration projects, initially on islands, but increasingly within the urban Auckland. His practical participation in biodiversity management is currently focused through 5 projects - Tiritiri Matangi Island, Miranda conservation area, Chatham Island taiko expedition, Uruamo Headland (North Shore City) and Kaikoura Island.

Dan Blanchon

Dan is a Senior Lecturer in biodiversity and biosecurity in the School of Natural Sciences at Unitec New Zealand. He completed a MSc in botany revising the lichen genus *Ramalina* for New Zealand at the University of Auckland, quickly followed by a PhD in botany at the same institution studying the systematics, cytology and breeding systems of the New Zealand iris (*Libertia*).

Dan's current research focus is on the life history traits of invasive plants and how these can be overcome. He also has a research background in lichen systematics and the morphology, anatomy and evolution of native plants. Current research projects are: investigating pre-border controls of imported plant material; measuring the effects that tree privet has on ecosystems; studying the systematics and ecology of the lichen genera *Ramalina* and *Usnea* in New Zealand; describing a new species of the native iris (*Libertia*).

Biography

- 1978 Born in Pittsburgh, Pennsylvania.
- 1997-01 Attends Syracuse University, Syracuse. Receives BFA with honours in printmaking.
- 2000-01 Receives the University Scholar Award, The David Orlin Prize, and the College of Visual and Performing Arts Scholar Award from Syracuse University.
- 2001-04 Works as Associate Printmaker at Artists Image Resource, Pittsburgh.
- 2004 Arrives in New Zealand, 16 February.
- 2004-05 Attends Elam School of Fine Arts, Auckland. Receives MFA with honours.
- 2006 Receives the 2006 Team McMillan BMW Art Award.
Begins work as lecturer in the School of Architecture and Landscape Architecture, Unitec New Zealand.
- 2007 Has first solo exhibition in Auckland, "Quiet," Seed Gallery.
- 2007 Receives Internal Research and Advanced Practice Fund from Unitec New Zealand.
- 2007 Has solo exhibition in Auckland, "fallen," Seed Gallery.
- 2008 Receives approval in principal for residence, Immigration New Zealand.

Selected group exhibitions:

- 2006 *Unstitched, Unbound: Imprints for Change*, Nathan Cummings Foundation, New York.
AIR10, Artists Image Resource, Pittsburgh, PA.
Origins and Originality, Seed Gallery, Auckland.
- 2007 *John Pusateri, Renee Zettle-Sterling*, Interlochen Center for the Arts, Interlochen, MI.
Memorie+Morte, Artis Gallery, Auckland.
Big Heads, Seed Gallery, Auckland.

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