Globalisation, conservation and the urban environment

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ABSTRACT

Plant conservation has moved centre-stage globally with the adoption of a Global Plant Conservation Strategy by the Convention on Biological Diversity in April 2002. This novel programme includes 16 targets to be reached by the year 2010. A number of these relate to urban environments: cities are themselves often located within areas of significance for biodiversity, cities impose a distinctive set of threats to indigenous species and ecosystems; and, while it is well-recognized that the activities of people are a primary cause of biodiversity decline it is also the activities of changed people that are crucial to restoration of biodiversity and the processes that maintain it.

Within the urban fabric, botanic gardens play an increasingly major role as a primary interface between people and nature. The implications of this are briefly explored, especially in relation to the International Conservation Strategy for botanic gardens. But there are many other opportunities for taking the global picture down to the local level in urban environments as part of an enlightened greening of cities, not only in a physical sense but also intellectually, socially and spiritually. Innovation, sparked by passion and backed by good science, along with developing community confidence in the conservation movement, is essential to achieve global targets in a local setting.

GLOBALISATION — THE MILLENNIAL AGENDA

One of my favourite parts of the world is the Algarve coast of southern Portugal. It is the homeland of rugged and resourceful people who changed the face of history as they sailed out into the unexplored Atlantic Ocean in the Middle Ages. Raw courage, insatiable curiosity and fanatical belief in positive outcomes drove Prince Henry the Navigator's sea captions to discover lands, people, plants and animals of which they could not have dreamed.

Today, we also voyage into the unknown, often with little to justify our course except a stubborn belief that the end result is worth pursuing. But sometimes it feels as though the voyage is akin to the perplexing situation facing Lewis Carroll's brave shipmates setting out to hunt for the mythical 'snark':

'He had bought a large map representing the sea,
Without the least vestige of land:
And the crew were much pleased when they found it to be
A map they could all understand.

Other maps are such shapes, with their islands and capes!
But we've got our brave Captain to thank
(So the crew would protest) that he's bought us the best —
A perfect and absolute blank!'

Aware of both the challenges and uncertainties, it is essential that we develop a vision of the kind of world we want for the future — we need to:

- Focus on fundamentals
- Define and maintain realities that provide a sense of place
- Face the necessary tasks to reshape our environment.

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A tragedy being played out against the backdrop of nature is the world is so rapidly changing that people tomorrow may not see the plants and landscapes that we today take for granted. A wide range of data supports the supposition that might have been thought a few years ago to be fantasy, that as many as two-thirds of the world's plant species are in danger of extinction in nature during the course of the 21st Century, threatened by population growth, deforestation, habitat loss, destructive development, over-consumption of resources, the spread of alien invasive species and agricultural expansion (Convention on Biological Diversity 2000).

This is especially pertinent for New Zealand. About 50% of New Zealand is agricultural or forestry production land, and only about 23% of our land area is in near-natural condition (Given & Mittermeier 1999). Globalisation continues to be a major pressure. Our agricultural landscapes are driven by global trade imperatives. The alien plants of our cities are an outcome of globalisation of horticulture and botany. The process of globalization makes the world a smaller place. Modern transport has brought us within overnight reach of nations that a few decades ago were days and weeks away. Emigration from Europe to the antipodes was a generation ago a one-way ticket. Today it is little over a twenty-four hour flight with return flights guaranteed.

We are a small isolated nation in every respect and as a result some of us tend to ignore globalisation. We cannot ignore it and in fact our traditional inventiveness should provide a very marketable niche. But our isolation does have drawbacks. It can breed an attachment to orthodoxy, a failure to heed advice from outside, a smugness that does not tolerate 'tall poppies', and a false sense of security. But globally, whether we want it or not, we are in the biodiversity limelight. Recent analysis of the 'hot-spot' concept — a way of identifying those places where biological diversity is particularly rich — shows that all New Zealand is one of 25 global focal points for biodiversity (Mittermeier et al. 1999).

We are one of those places on Earth where there is greatest responsibility for stewardship, protected area systems, environmental education, community conservation initiatives, and sustainable resource use.

CENTRE-STAGE IN THE GLOBAL THEATRE

April 2002 saw adoption of a Global Plant Conservation Strategy by all parties to the Convention on Biological Diversity, including New Zealand. This novel programme includes 16 targets to be reached by the year 2010. These include targets for protection of 60% of threatened species both in the wild and in botanic gardens, management of alien invasive species, sustainable use of plant resources, and overarching education, enhancement of conservation expertise and increased networking.

These are 'across the board' and do not specifically refer to urban environments, but several are highly relevant to and best carried out within our towns and cities. There is sometimes a mistaken belief that conservation is something that happens out in the wilderness or on remote islands. This is an incorrect view — cities have conservation needs and certainly audiences to be taught and encouraged. Perhaps surprisingly, cities often occur coincidentally with high natural levels of biodiversity. This is not an accident. Concentrations of business and commerce, people and their baggage are often at landscape intersection points where steep and complex environmental gradients promote high natural levels of biodiversity. But by their very nature and the intensity of human occupation, cities impose a profound set of threats to indigenous species and ecosystems.

It is sobering to consider that had the Environmental Risk Management Authority (ERMA; New Zealand's authority responsible for decisions on the introduction of new organisms) operated prior to humans reaching this country, it would have almost certainly banned humans from stepping ashore. We do not meet the alien invasive criteria that we ourselves set, perhaps arrogantly, for all other biodiversity. Yet there is a paradox — the people who cause so much damage are also the people who are crucially important when it comes to restoration of both

biodiversity and the processes that will maintain it into the future.

One of the major problems in activating urban action that enhances 'greening' of cities and benefits biodiversity is the value we place on such things. We all do things and give priority to those actions that we value. A problem we face is that biodiversity values varies from one society to another and even in a single city, social preferences, family tradition, and distribution of assets and income all influence perceptions of the value of nature, wilderness and biodiversity.

Especially significant is the value placed on raw nature itself — an important part of the human search for sense of place. In an urban world of manicured hedges, lawns, concrete and steel, the nearest that many may get to wilderness is watching Discovery Television or negotiating the supermarket on a busy Friday evening. Yet we all desire to preserve and enhance that which is precious. And this involves not just human constructs and myths but also the biodiversity, ecology, climate, and physical landscape where we live.

Walden Pond near Boston is a small, forested lake. It would be a quiet piece of wilderness, were it not for the interstate highway on one side and a railway line on the other. Here young Henry David Thoreau penned the memorable words:

> *We need the tonic of wilderness … we can never have enough of nature … we need to witness our own limits transgressed, and some life pasturing freely where we never wander.*

His book, *Walden*, first published in 1854, became the handbook for the developing wilderness movement of the nineteenth century. But historically, wilderness has often been anathema to the advance of so-called civilization, and Guy Hand (1999) describes how:

> *The English saw in the Highlands, not only land darkened with trees, but incivility. They called the native Highlanders 'savages', (from the Latin root silva, meaning forest) and their trees 'an excrescence of the earth, provided by God for the payment of debts'. Through the axe, the Highlands and its people were to be cleansed of chaos and shown the path to culture. The English, of course, were not the originators or sole practitioners of the belief that culture must only be built on the stumps of trees.*

Aotearoa-New Zealand has not been immune to culture being built on the stumps of trees. The last major land mass to be reached by humans, in only 800 years we have transformed lowland New Zealand from a landscape teeming with nesting petrels, marine mammals, strange invertebrates, flightless ratite birds, abundant reptiles and dark forests to a faint replica of what once was.

Can we make amends? Somehow in our greening of cities we need to incorporate some wilderness concepts. Not everything needs to be tidy, tamed and timetabled. We plan so often for certainty, predictability and stability, seemingly unaware that evolution delights in the unexpected, and in periodic stochastic events that drive so many biotic processes. We need to accept uncertainty and risk as natural and even healthy in urban environments.

Returning to the matter of values, a while ago US$20 million was paid for a Van Gogh painting, a sum far beyond the resources of most people. Just after I heard of this I asked if someone would pay the same amount for a wetland rich in indigenous plants including rare species that might have taken 20 million years to evolve. The answer was, 'Probably not!' This response suggested that while appreciation of aesthetic value has matured in the fine arts, it has not in our view of nature. It seemed to me that if the wetland represented 20 million years of evolution it might not be a bad bargain at a valuation of one dollar per year of its creation.

BOTANIC GARDENS — A PRIMARY INTERFACE

Botanic gardens are a primary interface between people and nature, in urban

environments. As Vernon Heywood (1987) has pointed out, the botanic garden is a social institution that has arisen in answer to human perceptions and needs. This is elaborated in the International Conservation Strategy for Botanic Gardens that summarises the global mission of botanic gardens worldwide in conservation as:

- Stemming the loss of plant species and their genetic diversity
- Focussing on preventing further degradation of natural environments
- Raising public understanding of the value of plant diversity and the threats it faces
- Implementing practical action for benefit and improvement of natural environments
- Promoting and ensuring the sustainable use of natural resources for present and future generations.

Every botanic garden reflects its own unique socio-economic context, but within this the role is increasingly complex. No longer are collections locked away to be seen only by the privileged. Instead, public interpretation, education, training, facilitating, and demonstrating plant materials and their use are expected.

Gardens need to know who their clients are and what they want and expect. They need a strong ethical component and an articulated sense of mission related to biodiversity discovery. As a number of urban commentators have pointed out, becoming city dwellers we become obsessed with human problems, but at the same time we so tend to alienate ourselves from nature that few of us can name the wildflowers or insects of our locality or notice the rapidity of their extinction.

Today, botanic gardens should belong to all people and not just an elite few. They provide a green counter to the prevailing emphasis on automobile cities. They must reach beyond garden walls, both upwards through national and global networks, and downwards to engage with the community where people live, and where restoration and habitat enhancement is desperately needed.

They must develop policies that result in the enrichment of all city green spaces, and that help ensure people's choices for greening private land is made on the basis of well-informed decisions. Furthermore, botanic gardens are living laboratories for demonstrating the role of plants in such diverse areas as climate amelioration, environmental and social health, and public safety.

Botanic gardens are among the world's most visited institutions — in Christchurch, 1.2 million visitors enter the botanic garden gates each year. Two thirds of all visitors to Christchurch visit the botanic gardens. The gardens are an icon essential to the 'garden city' image. They are a natural focus for telling all people, regardless of race, creed, age or socio-economic standing about the extraordinary and mutually beneficial relationships that exist between nature and humanity.

THINKING GLOBALLY — ACTING LOCALLY

What key messages for today will ensure the success of our voyage? We need to be prepared to take risks. We need to know both that each small step forwards marks progress towards a greater goal, and that any step backwards is something we can learn from. We need to ground conservation in equity, not only for people but also for biodiversity itself. This means targeting resources to real needs and problems where greatest gains will be made.

We need to ensure conservation management is based on credible research and practice. We need to root city planning and practice in truly cooperative enterprises and not be afraid to debate contentious issues at every level of decision making. We need to recognise the wide range of stakeholders who have legitimate sense of ownership and stewardship. We need especially to work on positive relationships between human society and nature.

A key issue for local governments in New Zealand, especially urban environments, is to move thinking, planning and management from a relatively static view of ecosystems and biota into one that is far more dynamic, where chaos, catastrophe and heterogeneity are seen

as normal. This new paradigm in ecology and conservation acknowledges that biodiversity is complex and dynamic. Planning needs to reflect this, otherwise it is likely to collapse due to systems failure.

Another emerging paradigm is the need to differentiate species diversity from species richness. There is an often-held assumption that all the separate components of nature are necessarily interchangeable. A good example was the debate in the 1970s on whether introduced ungulates were surrogates of the now extinct ratites with respect to eating divaricating shrubs. Ongoing research is showing that the eating modes of each are so fundamentally different that surrogacy does not exist. Yet, cities do need to acknowledge that allowing new mixes of exotic and native species may be necessary in urban environments to ensure biodiversity survival overall.

One of the intentions of the Convention on Biological Diversity is that its principles should permeate every sector of human activity. New Zealand is not immune from the destructive effects of 'silo mentality', which permeate much of our decision making from local committees upwards. The Convention, in its debates, recognizes this as an issue in many parts of the world. There is urgent need to replace the concrete walls of sector silos with permeable membranes that allow free flow and interchange of ideas and experiences even within institutions.

Too often we make assumptions about others that colour our initial assumptions. During a conference in the early 1990s, I overheard two delegates enthusiastically discussing their mutual concerns for marine environmental issues. At the end of the coffee break they were astounded when they exchanged business cards and discovered that one was an oil company executive and the other was from an NGO that publicly opposed the operations of the former. We need to talk with the opposition from a base-line that minimises assumptions about the viewpoint taken by others.

The challenges are tough, and each of us will encounter unknowns, as did the Portuguese navigators. But at the end of the day we have the satisfaction of knowing that our few marks and scrawls, no matter how small, transform the blank map into a route guide for future generations. Above all, the world is seeking leadership from those who can articulate direction and know where they are going. Such leadership must incorporate innovation and lateral thinking, hope and optimism. We need visionaries — those prophetic people who will dream of what is possible and see visions of it happening.

Awareness and attitudinal change throughout society are essential. We need to educate, not just cramming knowledge, but developing wisdom and discernment. This involves (in biological terms) development of local mutualisms, and relationships marked by growing confidence and trust. This is risky thing but Aldo Leopold (1966) reminds us that:

> *'The bulk of all land relations hinges on investments of time, forethought, skill and faith rather than on investments of cash.'*

Furthermore, we need to relearn how to love and cherish. We apply intense scrutiny to financial investments and business decisions. But we also initiate life-long alliances on the basis of a glance across a room or a chance conversation. What does this have to do with biological diversity? Simply, this — many of our predecessors were driven by an intense and transforming relationship with the world around them. Alfred Russell Wallace (one of the greatest of nineteenth century biologists) writes in one of his letters of his first sight in Borneo of a bird-wing butterfly (Marchant 1916) that:

> *'It is one thing to see such beauty in a cabinet and quite another to feel it struggling between one's fingers, and to gaze upon its fresh and living beauty, a bright green gem shining out amid the silent gloom of a dark and tangled forest.'*

And why is enthusiasm important? It is because people are moved to value biodiversity through our passion as much as through reading pages of statistics.

So, what of the future? Our responsibility is local, regional, national and global. Inextricably, the history of humanity and development of civilization is the story of people's relationship with the diversity of life around them. None can stand on the sidelines. If we have no opinion, claim neutrality, or regard the status of nature as something that does not concern us, then we are part of the problem.

The challenging words of Abraham Lincoln, at the end of the American Civil War surely lead us on to act, hope and pray:

> *'We cannot escape history ... we will be remembered in spite of ourselves ... we hold the power and we bear the responsibility.'*

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