

A visual commentary on biodiversity in Christchurch¹

Nancy Simovic and Simon Fenwick²

Boffa Miskell
PO Box 110, Christchurch 8015, New Zealand

ABSTRACT

Urban biodiversity — a misnomer ... one might think.

Not quite, for a closer look reveals that the city of Christchurch actually harbours a wide variety of species, habitats and ecosystems; most are modified or rehabilitated during development, though some are either remnant or reasonably intact.

The landscape architect's influence on biodiversity ranges from landscape assessment and protection of important landscapes through to client consultation and site-specific garden design. Our role is increasingly more challenging; ensuring individual aesthetics and current trends are balanced with appropriate ecological, cultural and functional design responses. Site-specific ecology can inspire the creative process of the designer, where biodiversity, especially in the urban context, is an important component of the successful landscape design.

We present a visual commentary on biodiversity in Christchurch, from the perspectives of two landscape architects working in and around the city. We explore the role of the landscape architect with regards to biodiversity, the reaction of the public to issues surrounding it and the potential for a greater understanding and recognition of biodiversity in public and private spaces.

INTRODUCTION

Our topic 'A Visual Commentary on Biodiversity in Christchurch' takes a closer look at the role of landscape architects in achieving biodiversity objectives. We look specifically at the city centre because it is here that the majority of the public interact on a day-to-day basis and experience the city. Through public interactions and skimming through the latest design catalogues we got a sense that there were limitations which potentially hinder our abilities to contribute to biodiversity initiatives. But, in critically observing the city centre and preparing this paper we identify opportunities with which we can pursue biodiversity without compromising and possibly enhancing the function and aesthetic of our urban centre.

Those engaged in biodiversity-related sciences generally define biodiversity as the variety of biological life, the genes they contain and the ecosystems they are a part of. Four objectives are outlined in New Zealand's Biodiversity Strategy (DOC & MfE 2000):

1. Education, and sharing responsibility
2. Sustainably protecting indigenous biodiversity
3. Halting the decline of indigenous species
4. Maintaining genetic resources of introduced species.

Working in the context of design, planning and stewardship initiatives, a landscape architect's role in these biodiversity objectives ranges from

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² simonf@boffamiskell.co.nz

a complete waterway enhancement to selecting species for a planter box.

Working with the public every day, the landscape architect's services are often requested for designing creative, functional, cost effective and aesthetically pleasing landscapes that contribute to the overall sense of place of a particular space or area. This is where we apply the mantra 'right plant, right place' identifying the balance necessary for practical and appropriate design responses.

We first identify hindrances or challenges to biodiversity enhancement in the city of Christchurch, which we have observed or experienced. Then we outline opportunities that, when you look hard enough around the city, do exist to build upon and enhance understanding and implementation of biodiversity objectives.

PUBLIC/USER PERCEPTION AND AWARENESS

There is a lack of understanding by the general public as to what biodiversity really means. Some people only understand it as a cabbage tree (*Cordyline australis*) in the city, while others simply understand it as a numbers game, i.e., more plants must be better.

After interviewing a range of people in Christchurch we felt confident that we had established what they knew about biodiversity and how they perceived the planting in the city contributing to biodiversity initiatives. There was certainly a lot of misunderstanding of the concept.

Having evaluated more than 50 interviews several issues arose:

- People are informed and have strong opinions about landscape planting in general in the city
- Most of peoples' landscape knowledge/opinion focuses on natives vs. exotics (a topic at the forefront of local media coverage)
- When asked about biodiversity specifically, there was confusion and it was assumed they are being asked about general planting or natives again.

It appears that biodiversity is not really linked (in peoples' minds) to habitat creation, or to social and environmental health. And if it is understood, it is understood as a numbers exercise, more must be better, and native must be best.

This provides a starting point from which to work and know that for us as landscape architects, and indeed all professionals, this is our target audience or benchmark from which to work.

TRENDS AND FASHION

Media has a strong influence on peoples' decisions, opinions and values. Television, film and video in particular can capture an audience (as we had at the conference with the film 'Street Talk'). Television garden shows and landscape magazine trends tend to overemphasize the visual component of landscape planting design above all else. This is a limitation to creating a balanced design as trends today often simplify planting schemes. For example:

- Minimalist/modernist garden ideals do not use much (or any) variety of plants (Fig. 1–2)
- Mass planting techniques occupy larger areas yet do not have many species in their layout (Fig. 3)
- Monoculture is a commonly used planting pattern today that tends to make use of one species and blanket the site with a uniform structure (Fig. 4)
- And the wish for an 'easy care' garden: tying in to the monoculture, it is often incorrectly perceived that maintenance of one plant is cheaper (even though diverse native planting could potentially warrant no maintenance).

With the large number of television programs and the quantity of magazines devoted to landscape design it is obvious that there is no shortage of interest in the topic. However, the overemphasis of aesthetic components such as colour and form unbalances the overall picture that landscape architects are trained to incorporate.

AVAILABILITY

Although biodiversity is not limited to solely native species, should people want to pursue native planting in their garden to contribute to

biodiversity efforts in the city, we conducted an exercise trying to source native plants listed in the more focused publications such as the *Streamside Planting Guide* (Meurk et al. undated). This guide provides a comprehensive species list of recommended native plants for margins and banks of local waterways.

Using a selection of the Guide's list of 58 recommended species (and several of our own; Table 1) we contacted six prominent plant suppliers in the city requesting the availability of a randomly selected 12 plants.

The knowledge of the supplier we spoke with ranged from the unfamiliarity with a mātai to the detailed knowledge of seed distribution techniques of a native rush.

The results of this survey indicated that four nurseries had less than 25% of the plants while the other two nurseries had 75% of the plants that we requested. Ironically, these two nurseries have the smallest advertisements in the Yellow Pages phone directory and are located the furthest from town.

This exercise illustrated three points:

1. In conducting this we assumed everyone knows where to find a *Streamside Planting Guide* and that they would actually get one which may not be the case
2. We also expected that the nurseries would carry stock so that we could buy the plants easily. We found that only 25% of the plants on our list were available at the major plant supply centres in the city
3. The third point is that, though we expect them to be, suppliers may not actually be knowledgeable about native plant species and where they should be planted.

What this creates is a series of challenges the average person needs to overcome before learning about biodiversity and doing something about encouraging it.

Table 1 A selection of native plants suitable for planting along streamsides.

Botanical name	Common Name
<i>Blechnum chambersii</i>	Kiokio, hard fern
<i>Carex secta</i>	Pūkio, tussock sedge, makura
<i>Coprosma linariifolia</i>	Yellow wood
<i>Coprosma rhamnoides</i>	Red fruited Mikimiki
<i>Coprosma robusta</i>	Karamū
<i>Coprosma virescens</i>	Mikimiki
<i>Cordyline australis</i>	Cabbage Tree, ti kōuka
<i>Cortaderia richardii</i>	Toetoe grass, toitoi
<i>Dacrycarpus dacrydioides</i>	Kahikatea, white pine
<i>Dicksonia squarrosa</i>	Whekī, rough tree fern
<i>Elaeocarpus dentatus</i>	Hīnau
<i>Juncus gregiflorus</i>	Tussock rushes
<i>Lophomyrtus obcordata</i>	Rōhutu, NZ myrtle
<i>Melicope simplex</i>	Poataniwha
<i>Melicytus ramiflorus</i>	Māhoe
<i>Microlaena avenacea</i>	Bush rice grass
<i>Myrsine australis</i>	Māpou
<i>Myrsine divaricata</i>	Weeping māpou
<i>Polystichum richardii</i>	Shield fern, pikopiko
<i>Pratia angulata</i>	Creeping pratia, pānakenake
<i>Prumnopitys taxifolia</i>	Mataī, black pine
<i>Pseudopanax crassifolius</i>	Lancewood, horoeka
<i>Schoenoplectus validus</i>	Kāpūngāwhā, lake club rush
<i>Schoenus pauciflorus</i>	Bog rush
<i>Streblus heterophyllus</i>	Tūrepo, milk tree

PROJECT REQUIREMENTS

As practising landscape architects, we are well aware of the many components that constitute a successful planting design in an urban landscape. Quite often (but not always) these components can be limitations to increasing biodiversity, particularly indigenous biodiversity.

The high number of pedestrian and vehicle traffic in the inner city creates several planting constraints:

- **Planting limited to small islands.** A large amount of hard surface is required at the ground plane, and planted areas often have to be mulched. This limits our ability to create corridors and well connected ecosystems (Fig. 5)
- **Deciduous trees for summer shade.** Light and shade requirements mean that deciduous trees are often preferred in Christchurch's inner city (Fig. 6)
- **Easy visibility for pedestrians and vehicles.** For vehicular visibility and pedestrian security, planting often must be high branching or low growing (Fig. 7)
- **Tough and easy to maintain.** The harshness of the street corner, which may be trampled, used as a rubbish bin and occasionally run over, means that only species that are resilient, fast growing and easy to maintain are used (Fig. 8)
- **Visual attractiveness again overemphasized.** Christchurch's garden city image means that the visual appearance of plants (such as flowering display, autumn colour) is emphasized, again reinforcing current trends (Fig. 9).

It is not entirely correct to say that all these points are constraints and will always be constraints. They may also contribute to opportunities.

OPPORTUNITIES

The general public's perceptions about biodiversity and the current fashion trends are not actual physical barriers to design. The only real barriers are the logistical requirements of planting around high numbers of people who may be walking, running, riding, skating or driving.

While this means we may not be able to create well-connected ecosystems as is possible in the rural environment, there are many things we can within our circle of influence.

- **Introduce native species variety.** We can do more to show native plant variety than just having window boxes on the ground (Fig. 10). It seems the will is there, but the execution is not quite right, and this is where designers can help
- **Educate about native aesthetics and possibilities.** We can do more to demonstrate the possibilities of native plant combinations rather than simply planting another row of exotic trees. Fig. 11 shows an ugly building; there is no real requirement for deciduous trees here, as the benefits of autumn colour are minimal when compared to a winter of visual torture!
- **Enhance waterways.** We are fortunate to have a waterway through the city centre (Fig. 12). Waterways are ideal opportunities to enhance ecosystems because of the aquatic/terrestrial interactions, the continuous plant structure, foot traffic numbers are lower than in the malls and squares, and because the width of the reserve offers a buffer area. This will need to be done both sensitively and creatively addressing aspects such as heritage, habitat, aesthetic and function
- **Create small habitats.** We can create small native habitats for fauna to stop into, feed and roost. While these will be largely symbolic efforts towards biodiversity, thought given to food sources can easily be incorporated into planting schemes. This space outside the Centra Hotel is certainly an opportunity lost (Fig. 13)
- **Create a sense of place.** One of the designer's main goals is to create a sense of place, simply defined as the feeling of being 'somewhere distinct'. We can be proud of our heritage in architecture, but biodiversity initiatives can help us create unique environments that make Christchurch a special place (Fig. 14).

We need clients to be continually aware of the possibilities of the city centre, whether the client is the private restaurant owner who

needs planter boxes, the shopping mall tenant, the landlord or the private property owner who needs a roof garden.

CONCLUSION

A landscape architect's role is increasingly more challenging: ensuring individual aesthetics and current trends are balanced with appropriate ecological, cultural and functional design responses. Biodiversity is an important element, though one of many elements considered when designing for an urban area. 'Right plant, right place' is still the designer's guiding principle.

The 'Street Talk' film shown at the RNZIH urban biodiversity conference clearly demonstrates the benchmark from which we work on education and stewardship initiatives with the public. Media provides us with a challenge. With simplistic aesthetics drawing in the public's attention, we need to clearly demonstrate a new aesthetic, or better yet, one that celebrates native biological diversity in a readily understood and accepted manner through design, whether it be an alley of kōwhai, or a manicured hebe hedge.

While appreciating the practical functioning of an active city, there are potential opportunities for the enhancement of biodiversity in the city centre. This will also help us to improve the uniqueness that characterises the city of Christchurch.

As the last person interviewed in the film observed, we think we're heading in the right direction ... don't you?

REFERENCES

- Department of Conservation (DOC) and the Ministry for the Environment (MfE) 2000: The New Zealand biodiversity strategy: our chance to turn the tide. Wellington, Department of Conservation and Ministry for the Environment. 144 p. Available at <http://www.biodiversity.govt.nz/picture/doing/nzbs/contents.html>.
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Fig. 1 Contemporary modern landscape design. (Photo: *Trends* magazine).



Fig. 2 Minimalist design on the Canterbury Plains. (Photo: *Trends* magazine).



Fig. 3 Colonial style house with mass planting of natives. (Photo: *Landscape New Zealand* magazine).

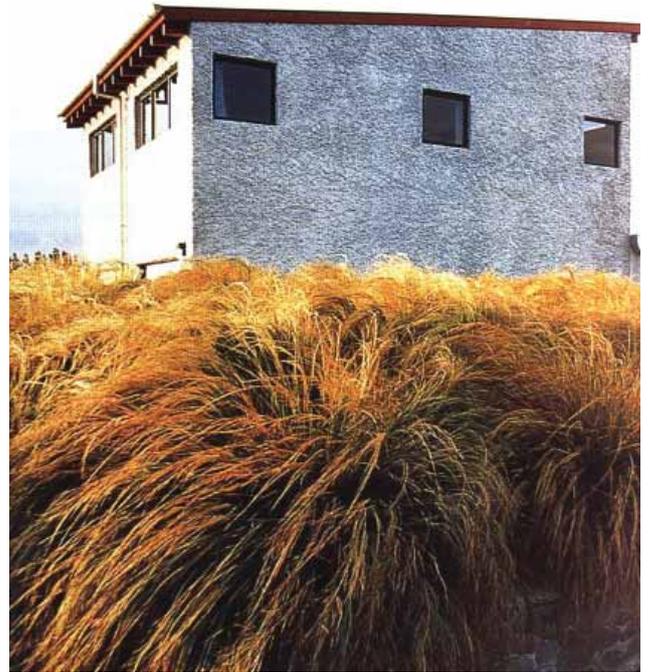


Fig. 4 Native grasses contrast against a stone building. (Photo: *Urbis* magazine).



Fig. 5 Squared planter berms in central Christchurch. (Photo: Nancy Simovic).



Fig. 6 Tree planters in Cashel Mall, Central Christchurch. (Photo: Simon Fenwick).



Fig. 7 Tough low planting in Christchurch streetscape. (Photo: Nancy Simovic).



Fig. 8 Algerian ivy (*Hedera canariensis*) in Christchurch streetscape. (Photo: Nancy Simovic).

Section 4: Focus on Canterbury



Fig. 9 Display bed in flower near the banks of the Avon River. (Photo: Nancy Simovic).



Fig. 10 Collection of natives poorly displayed in planter boxes outside a Christchurch café. (Photo: Nancy Simovic).



Fig. 11 The uninspiring expanse of a building wall ill-concealed by sparse plantings of deciduous trees. This building is in one of the most prominent positions in Christchurch, the intersection of Moorhouse Avenue and Colombo Street. (Photo: Nancy Simovic).



Fig. 12 The Avon River, flowing through Christchurch City presents opportunities to enhance waterways with plantings. (Photo: Nancy Simovic).



Fig. 13 An area outside the Centra Hotel, Central Christchurch, is planted in grass and lacks inspiration. (Photo: Nancy Simovic).



Fig. 14 A large New Zealand native specimen tree, akeake (*Dodonaea viscosa*), set against the Avon River and traditional English architecture provides a unique combination of elements. (Photo: Nancy Simovic).