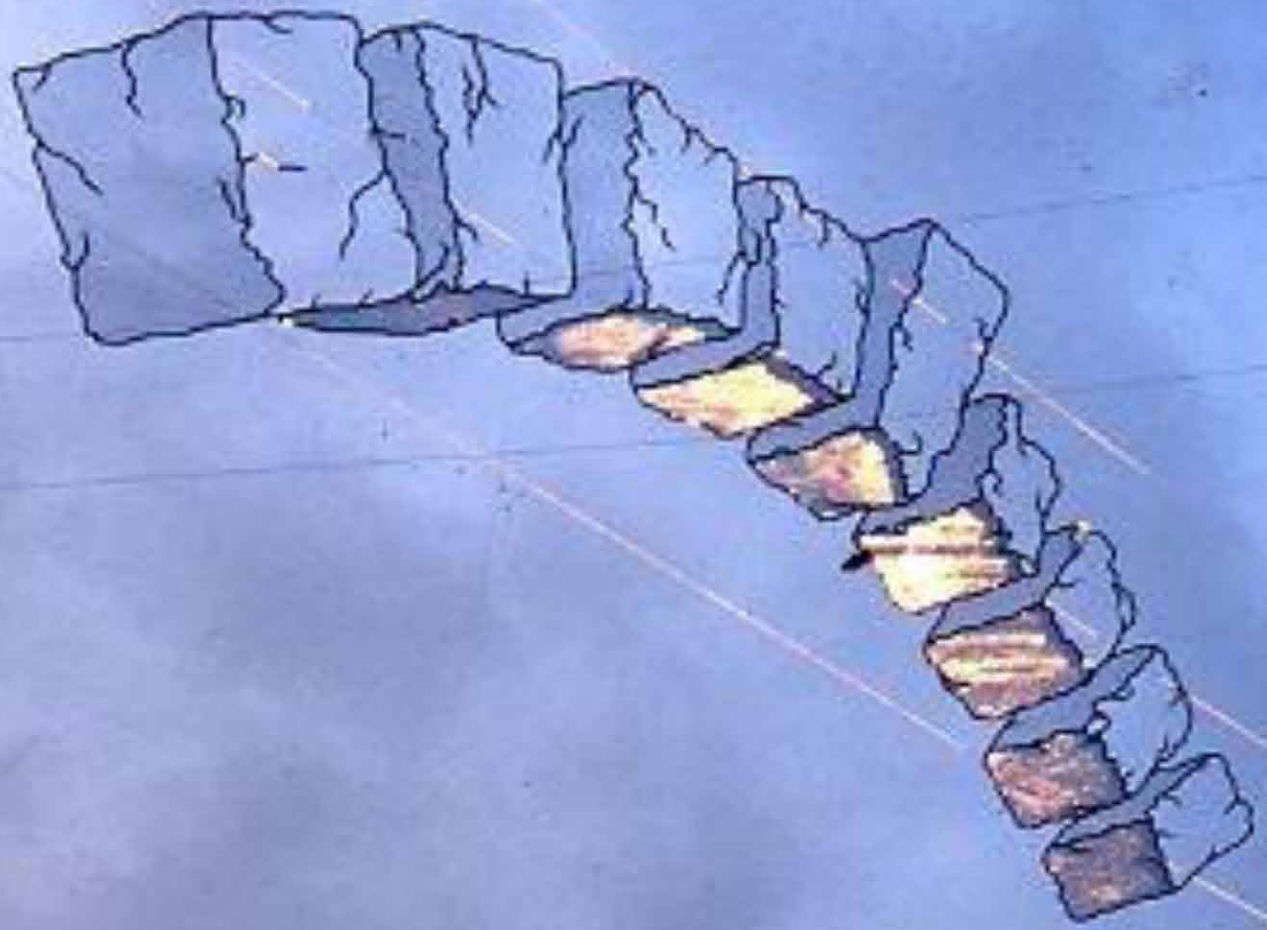
“Re-Gardening our City – RENEWING the World Model”



Di Lucas, Landscape Architect, Lucas Associates

Graphics by: Amanda Anthony, Landscape Architect, Lucas Associates

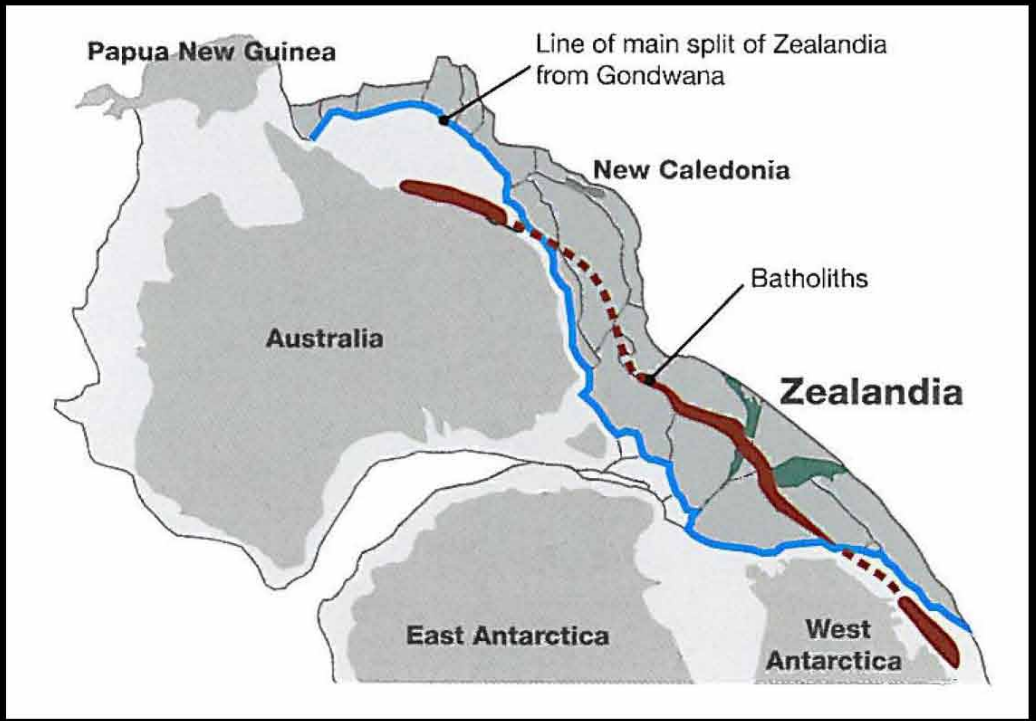
Neil Dawson “Nor-west Arch”

G O N D W A N A

200 million years ago

Source: *In Search of Ancient New Zealand*, p. 72

New Zealand separated 85 million years ago



Source: *A Continent on the Move*, p. 80

Canterbury Triassic Fossils

eg Malvern Hills, Clent Hills, Clarence Valley

magnolia

fern

ginkgo

cycad

liriodendron

Ginkgo fossil

Liriodendron ancestor

Source: Ian L. Daniel

GONDWANA

CHRISTCHURCH LANDS ARE FORMED

Formation of the basis to the greather Christchurch landscape

250 MILLION YEARS AGO sand & mud is deposited on the sea floor. Over time it becomes rock forming the Torlesse rocks which make up a large part of NZ's landmass today.

DURING THE FOLLOWING 100 MILLION YEARS the Torlesse rocks are forced up by pressures deep within the earth above sea level to form an ancient landmass.

This was subsequently eroded down to a low lying plain.

65 MILLION YEARS AGO the sea eventually invaded. This was overlain with a mix of quartz sand which turned to Charteris Bay sandstone.

23 MILLION YEARS AGO the Torlesse rocks were popped up for the second time resulting in the Southern Alps that we see today.

At the same time a huge pressure bulge was forming out to the east below the sea as molten volcanic rock began to rise to the earth's surface. This formed an island.

12 MILLION YEARS AGO these hot rocks broke the surface in a series of eruptions and in places covered the Torlesse rocks and sandstones.

11 MILLION YEARS AGO another large mass of molten rock pushed toward the surface and began the formation of the Lyttelton volcano. Over the next million years many eruptions and many layers of material built up a large basalt cone.

10 MILLION YEARS AGO the volcanic activity stopped, the cone began to erode and the sea eventually breached the crater wall forming what is Lyttelton Harbour today.

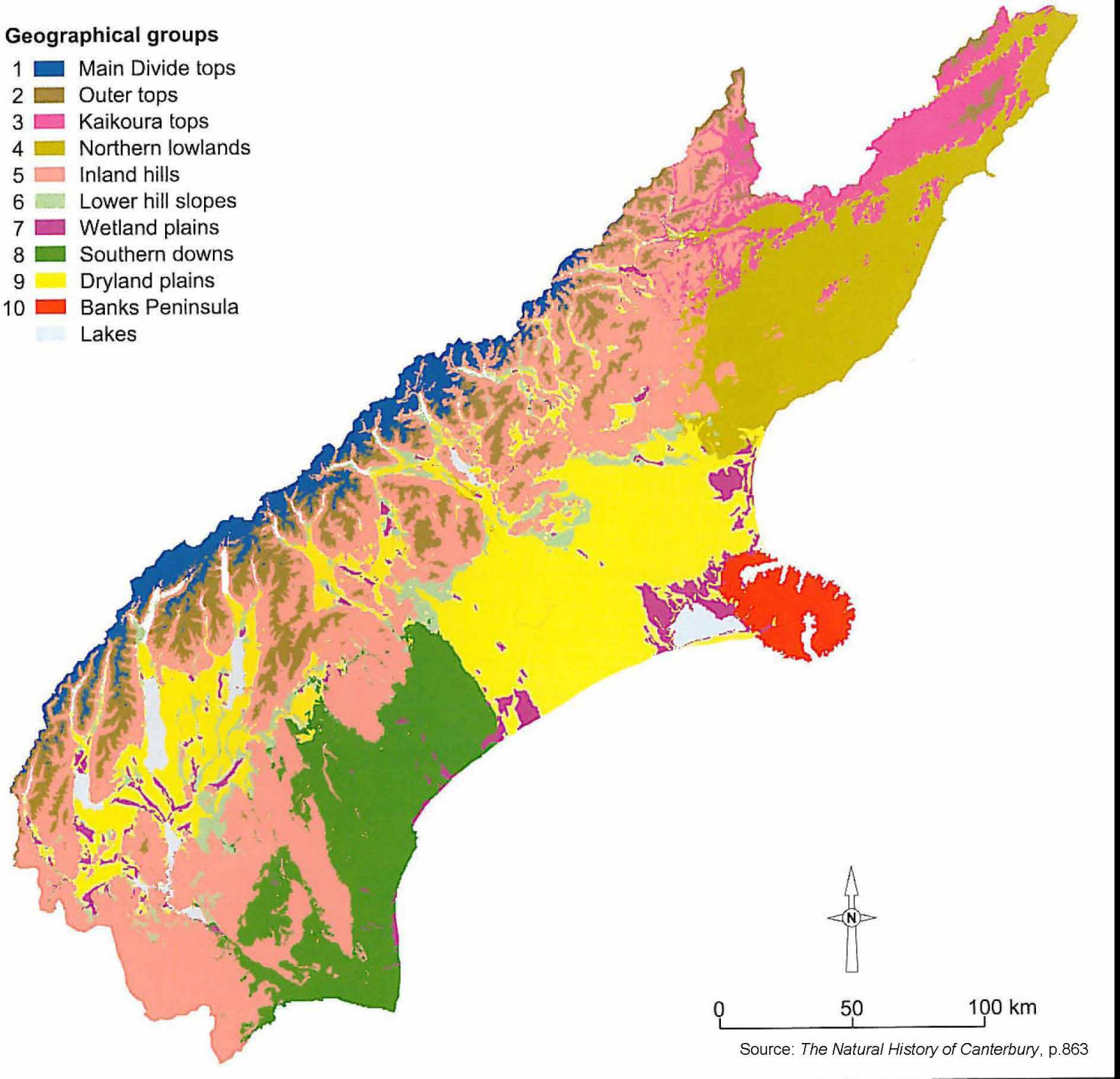
Subsequent volcanic activity followed on the southern flank of the crater and Mount Herbert was born, material thrown out of the vent flowing down into the flooded Lyttelton crater.

9 MILLION YEARS AGO and 74 kilometres away the Akaroa Volcano was born, forming the biggest cone of them all covering much of the existing landform over the next million years.

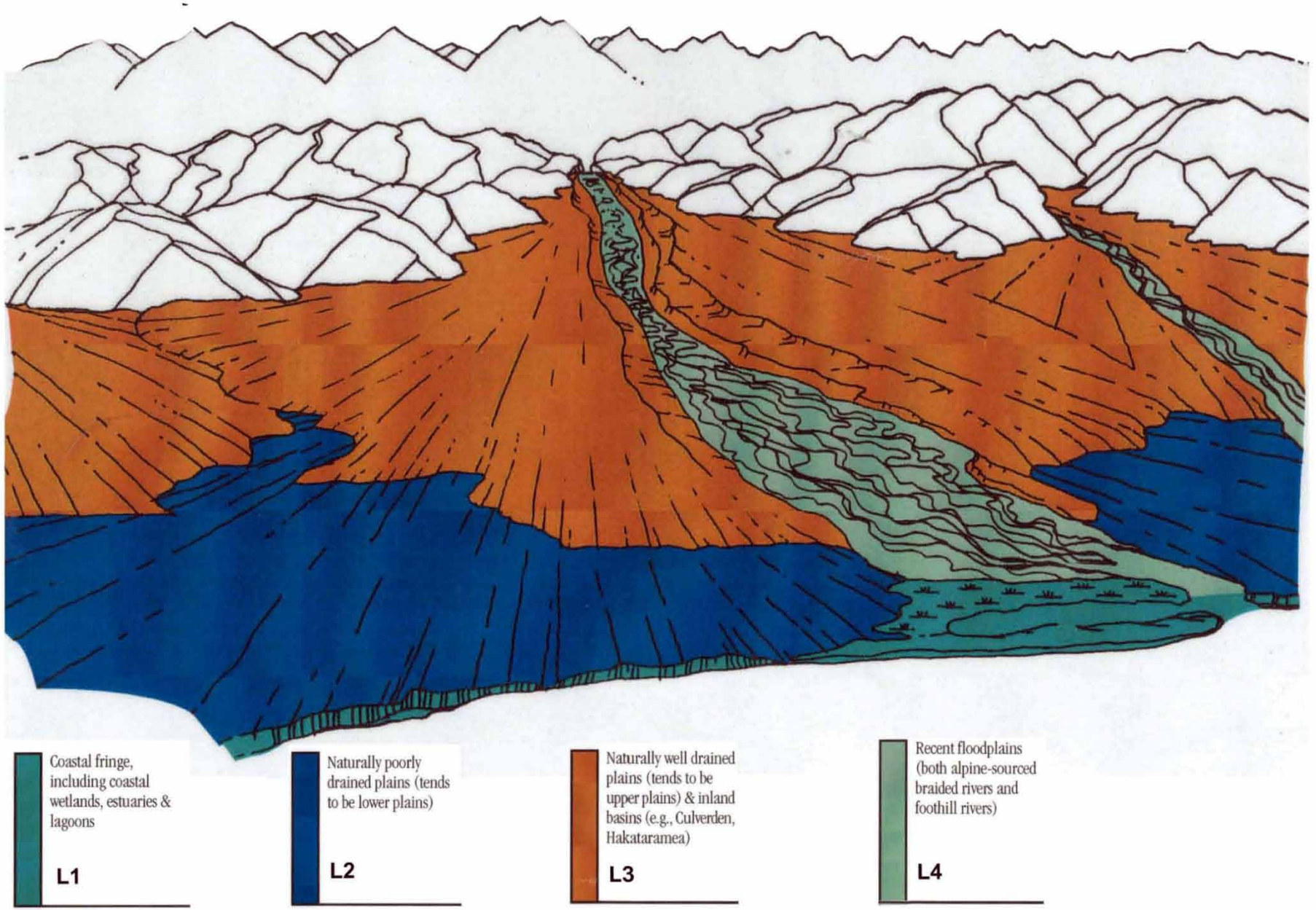
BETWEEN 8 & 6 MILLION YEARS AGO there were some small eruptions around the flanks of the Lyttelton Volcano. During this time the massive Akaroa cone was eroded down and its' crater wall breached by the sea.

Volcanic activity ceased after this period and constant erosion created the form of Banks Peninsula that we see today. But all was not quiet, FROM 2 MILLION YEARS AGO TO THE PRESENT DAY to the west, giant glaciers were grinding the Southern Alps down and spewing massive amounts of shingle out of the mountains and building a new plain. Over time this grew to depths of up to 1 kilometre forming the Canterbury plains.

20,000 YEARS AGO the plains, continually moving out to sea eventually touched the volcanic mass linking it with the mainland. Fine glacial deposits were whipped up by the ice westers and plastered on the old volcano as a blanket of yellow silt called loess. In places this is up to 20 metres thick.



Source: *The Natural History of Canterbury*, p.863

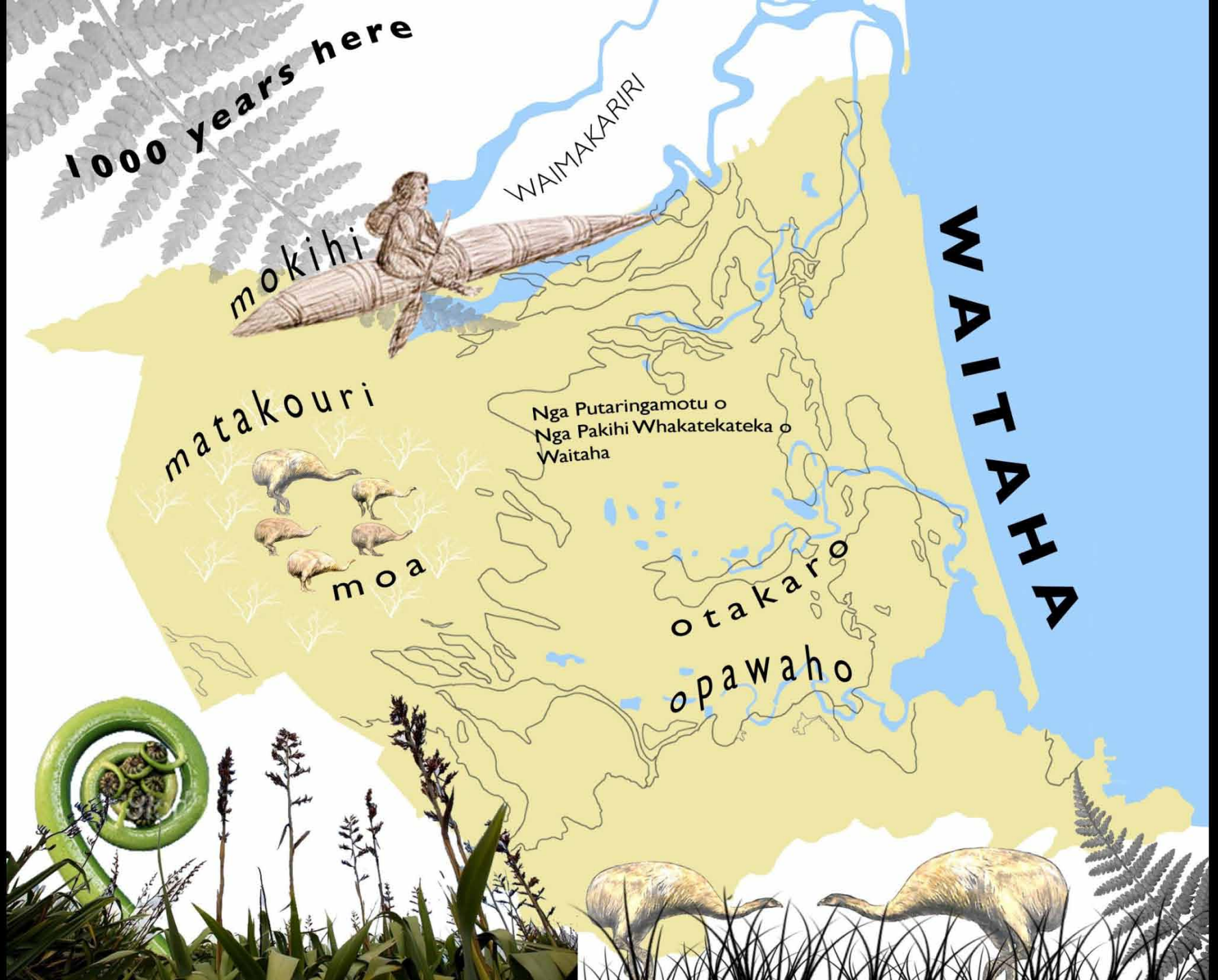


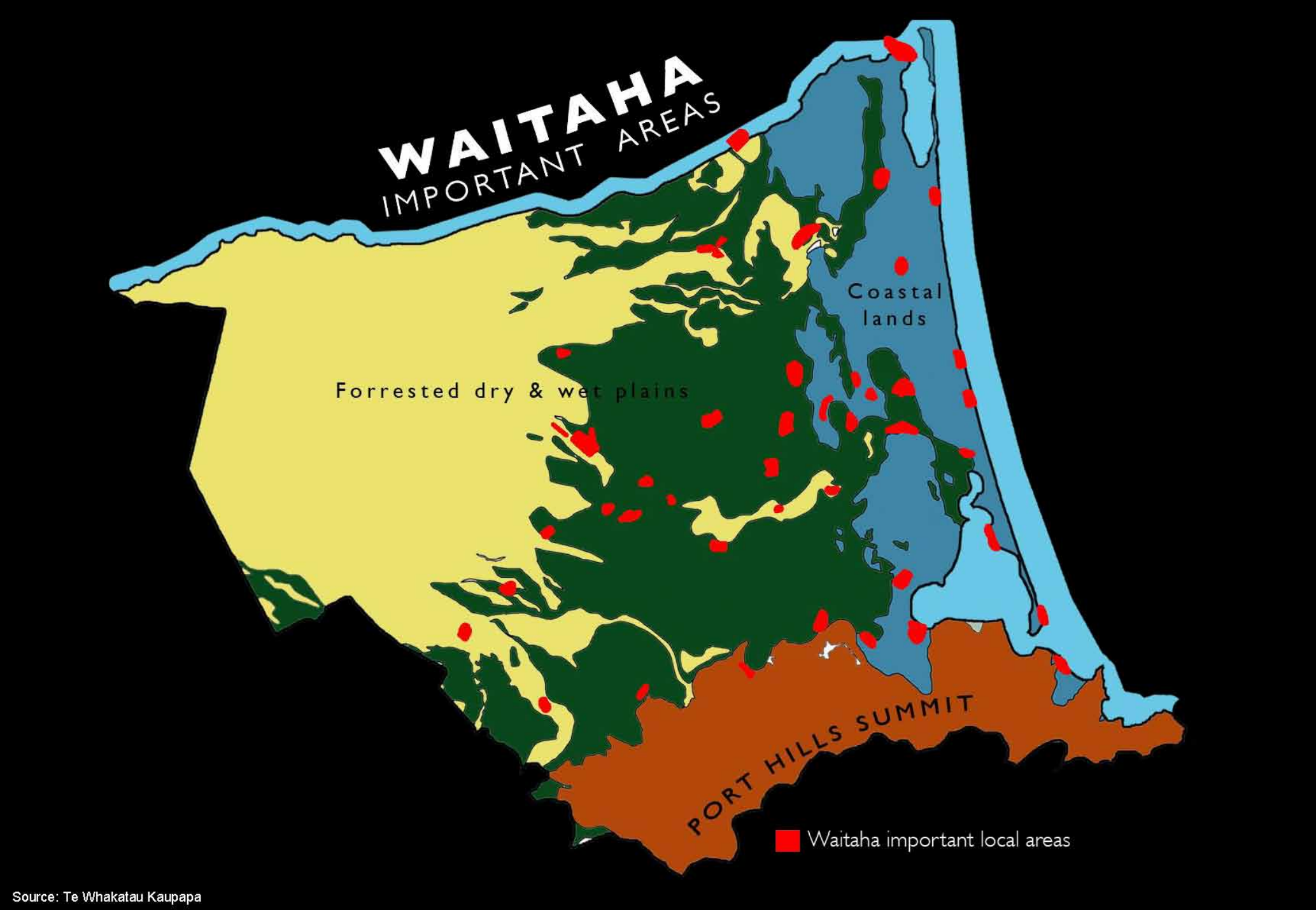
Canterbury Plains landform model

Lucas Associates with Ian Lynn, Landcare Research 2001

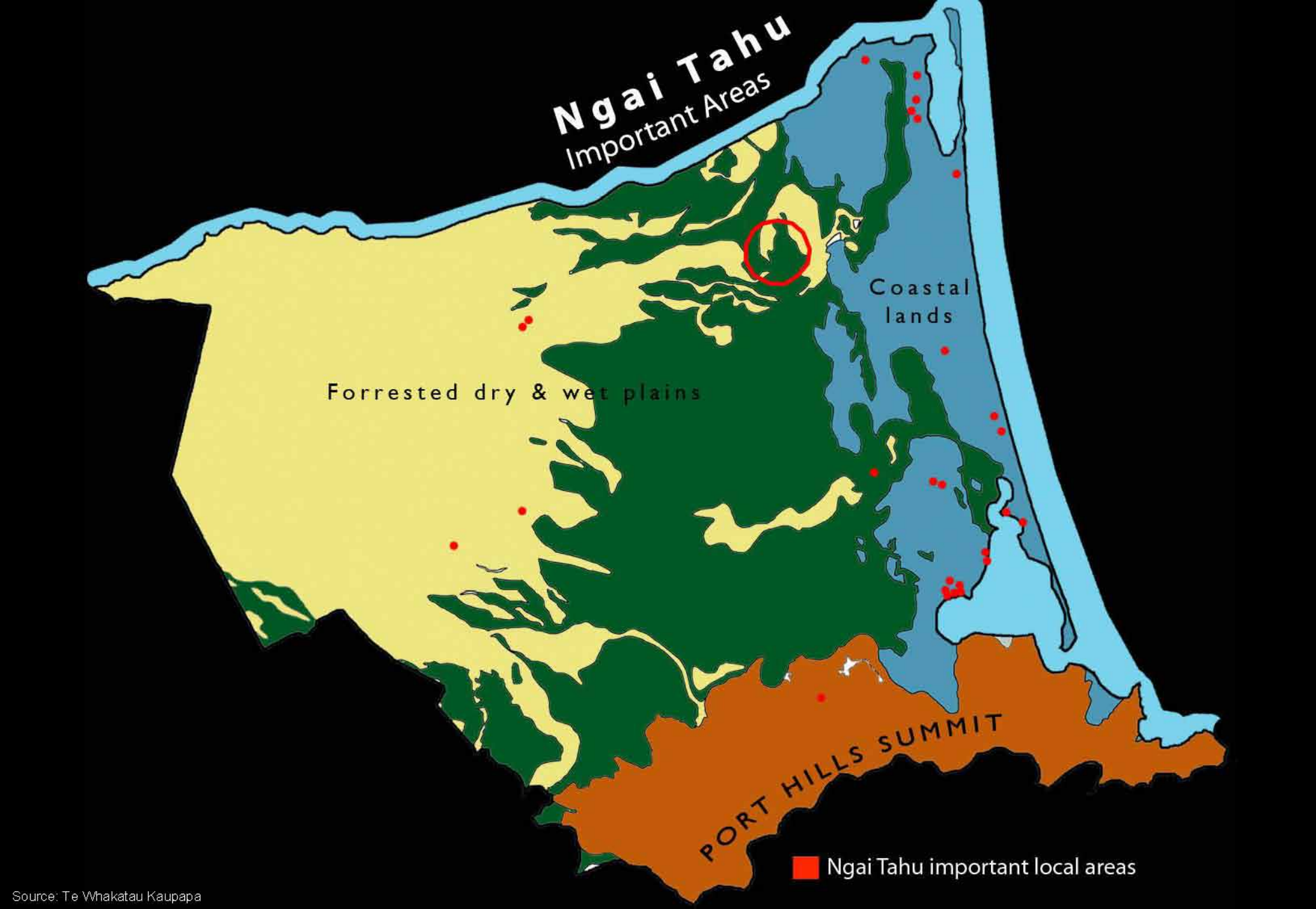
W A I T A H A

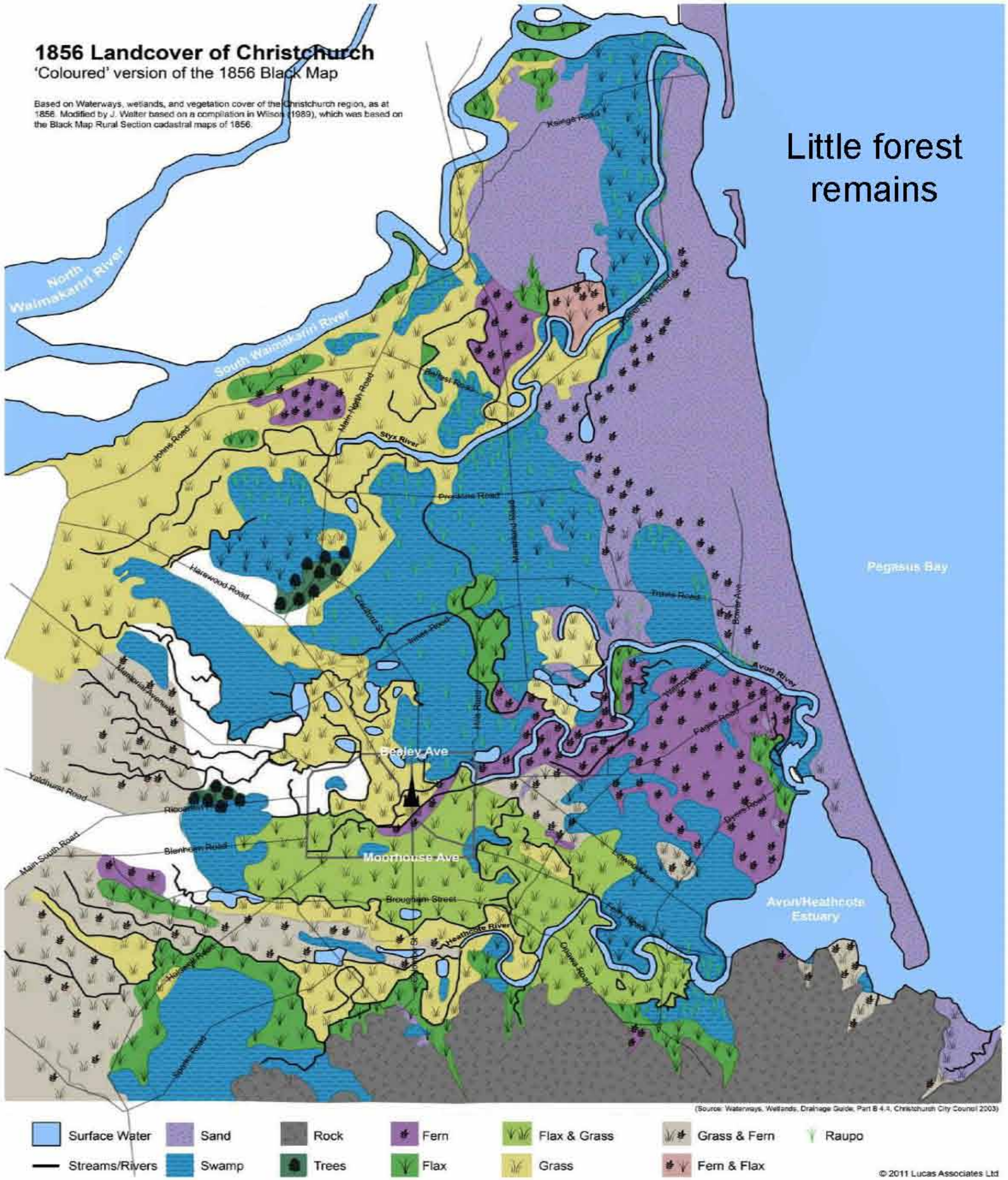
1 0 0 0 y e a r s a g o


1000 years here
WAIMAKARIRI
mokihi
matakouri
moa
Nga Putaringamotu o
Nga Pakihi Whakatekateka o
Waitaha
otakaro
opawaho
WAITAHA



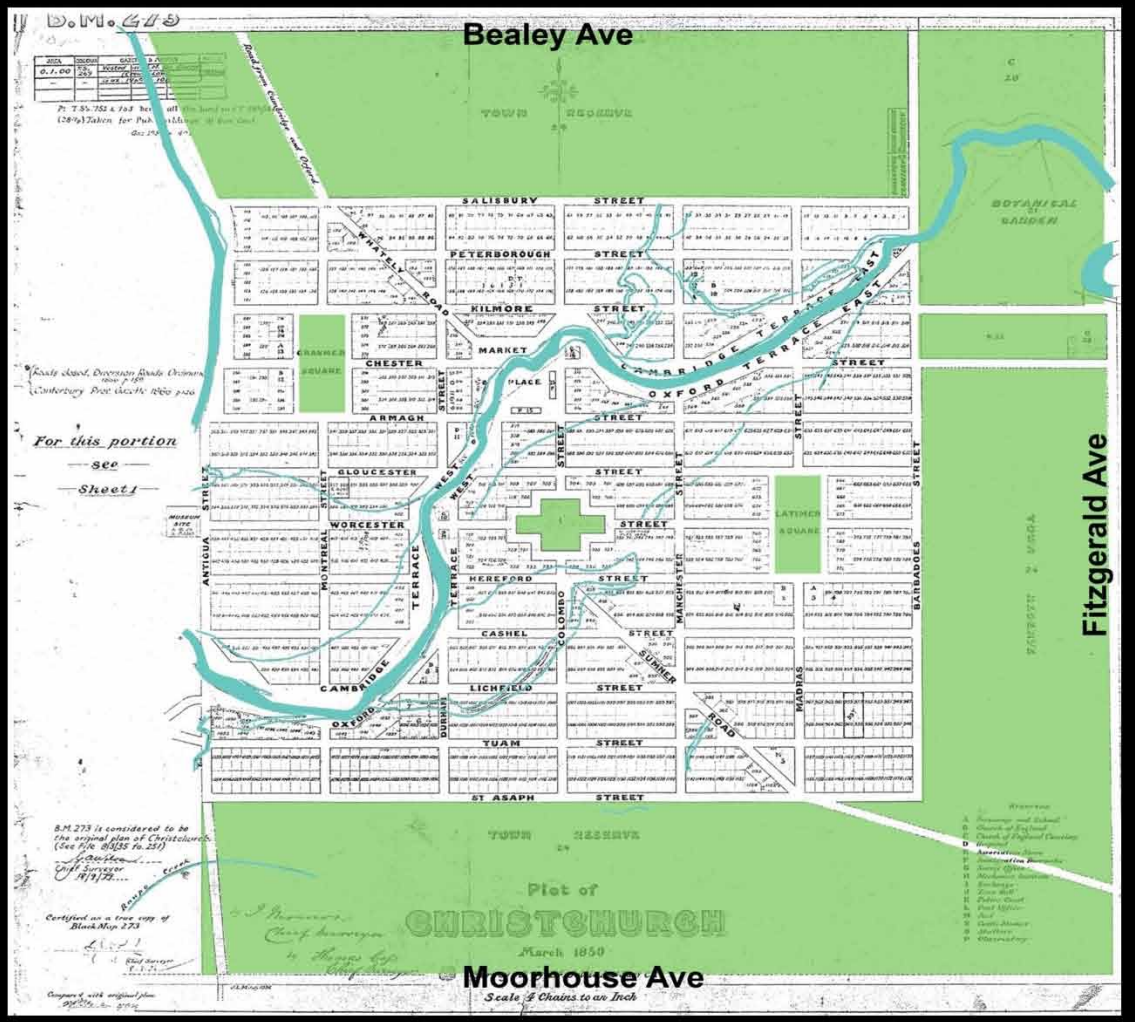
Source: Te Whakatau Kaupapa


Ngai Tahu
Important Areas
Coastal lands
Forrested dry & wet plains
PORT HILLS SUMMIT
Ngai Tahu important local areas
Source: Te Whakatau Kaupapa


1856 Landcover of Christchurch
'Coloured' version of the 1856 Black Map
Based on Waterways, wetlands, and vegetation cover of the Christchurch region, as at 1856. Modified by J. Walter based on a compilation in Wilson (1989), which was based on the Black Map Rural Section cadastral maps of 1856.
Little forest remains
North Waimakariri River
South Waimakariri River
Styx River
Pegasus Bay
Avon River
Bealey Ave
Moorhouse Ave
Heathcote River
Avon/Heathcote Estuary
Harewood Road
Blenheim Road
Main South Road
Yaldhurst Road
Riccarton Road
Brougham Street
(Source: Waterways, Wetlands, Drainage Guide, Part B 4.4, Christchurch City Council 2003)
Surface Water
Streams/Rivers
Sand
Swamp
Rock
Trees
Fern
Flax
Flax & Grass
Grass
Grass & Fern
Fern & Flax
Raupo
© 2011 Lucas Associates Ltd

1 8 5 0

Greatest Health for the Greatest Number



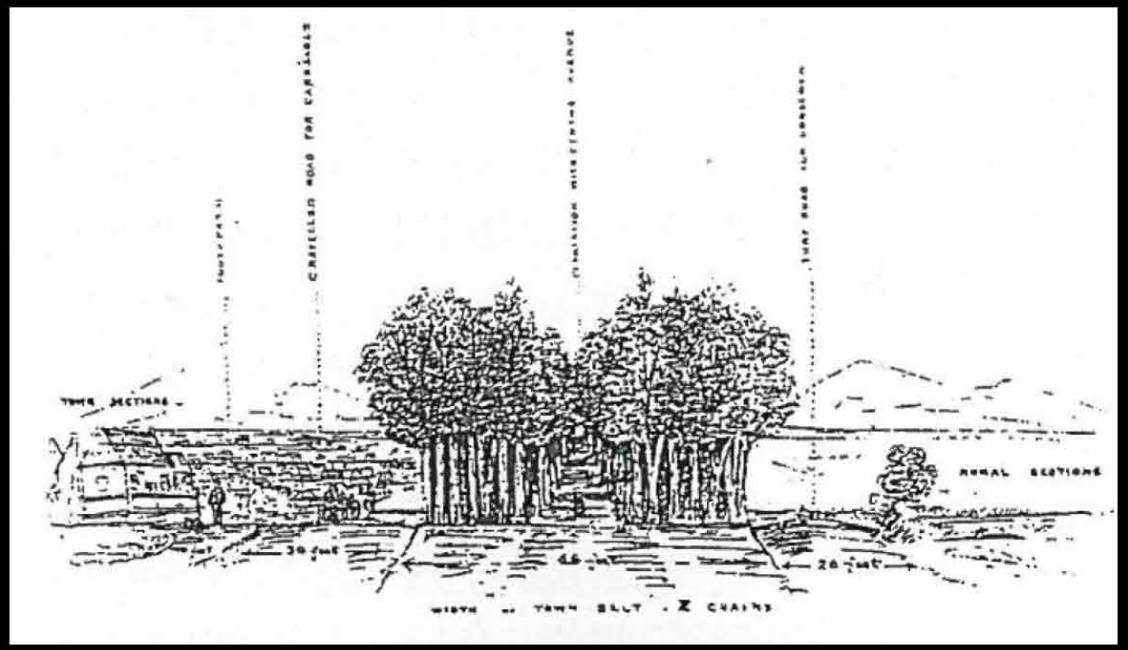
1850

A park greenbelt was to:

- **Improve the environment for the working class**
- **Separate urban and rural**
- **Control city expansion**
- **Guard against & protect the natives**
- **Transplant the British landscape**

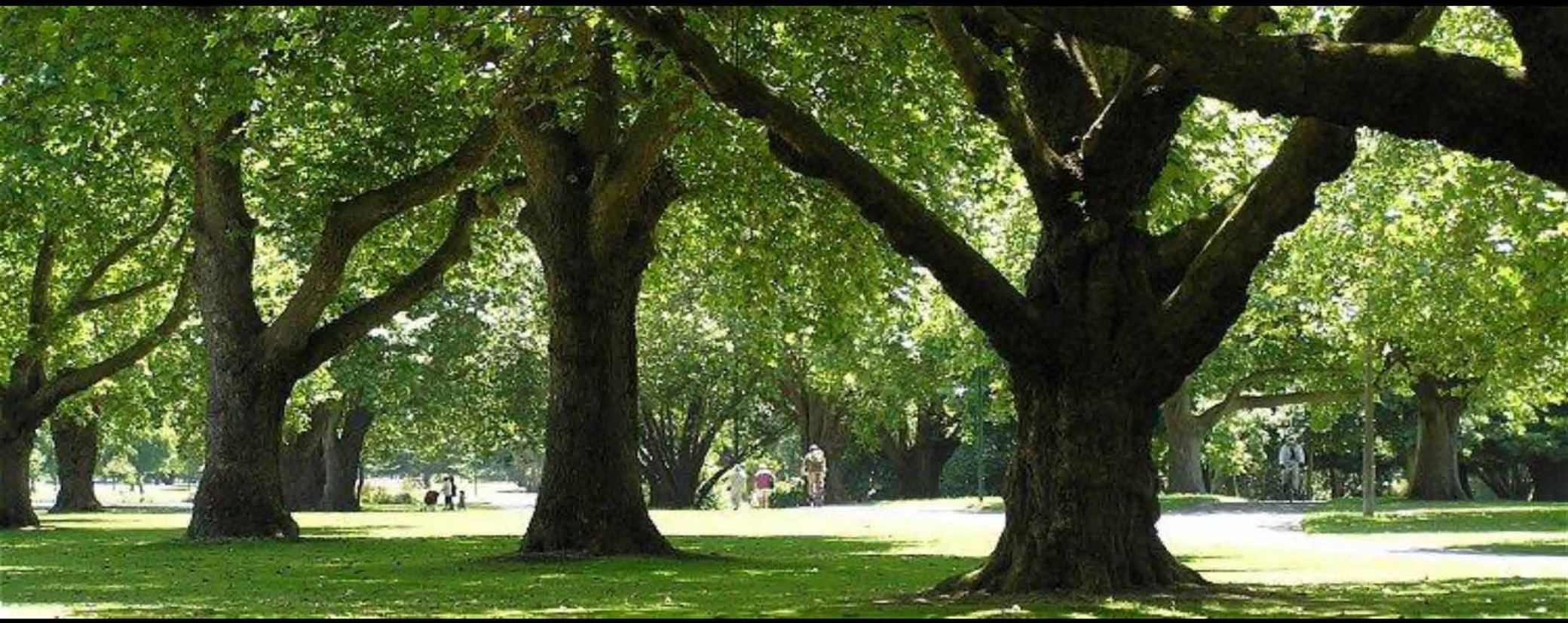
30m Avenues

Urban-Avenue-40m Town Belt-Avenue-Rural

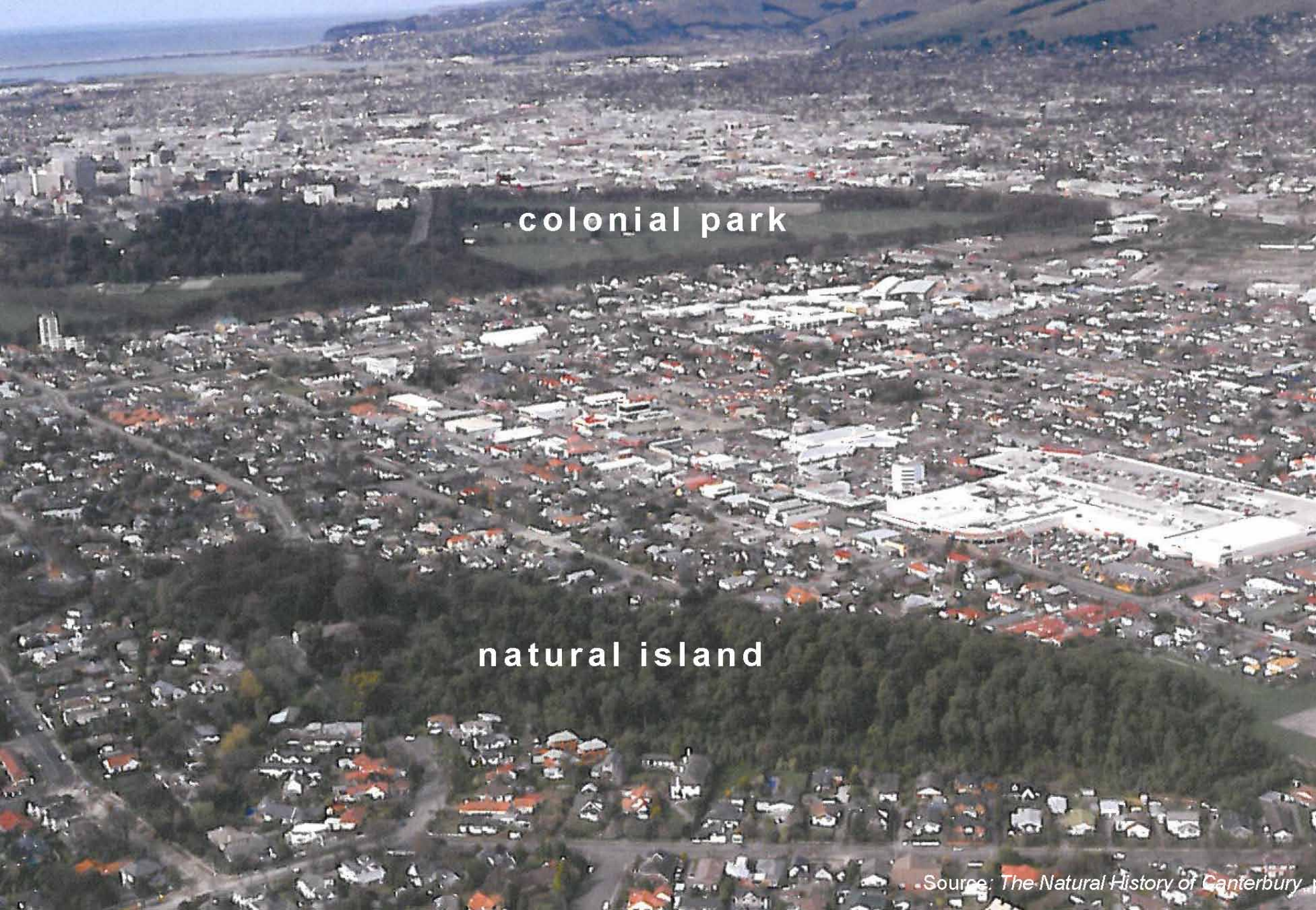


COLONIAL

Hagley Park lined with Oak trees

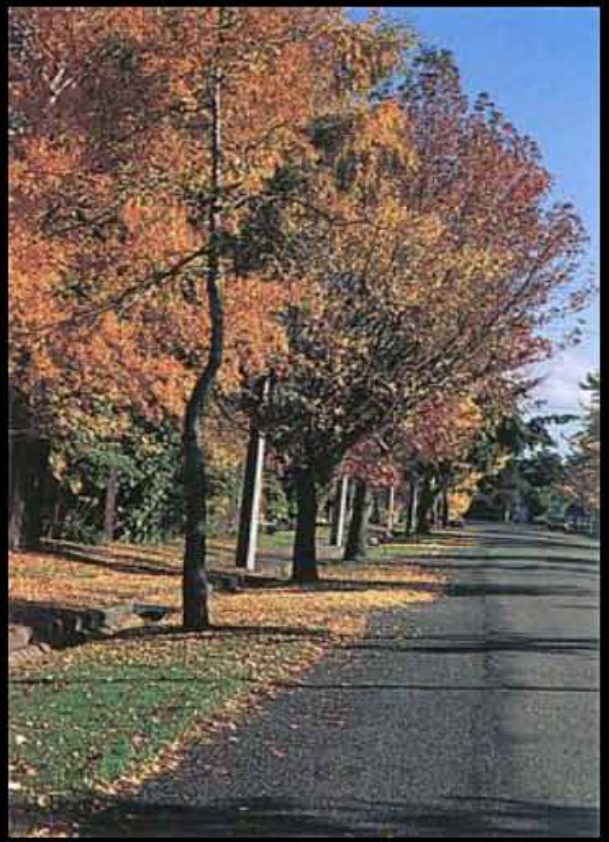


COLONIAL



Source: *The Natural History of Canterbury*

CITY BEAUTIFUL MOVEMENT



City Beautiful

The first 100 Years of the Christchurch Beautifying Association

Thelma Strongman

BEAUTIFYING

the post-war flourish

BEAUTIFYING

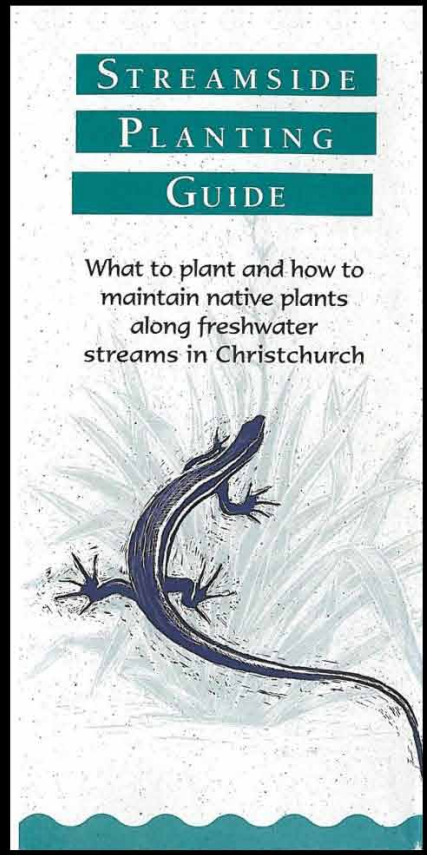
Home & Building in 1950 asked "Is a Pacific Style emerging?"

The Nature of Place

NATIVE **PLANT** GUIDES (1995)

Source: Lucas Associates 1995

CHRISTCHURCH'S **WATERWAY** ENHANCEMENT PROGRAMME

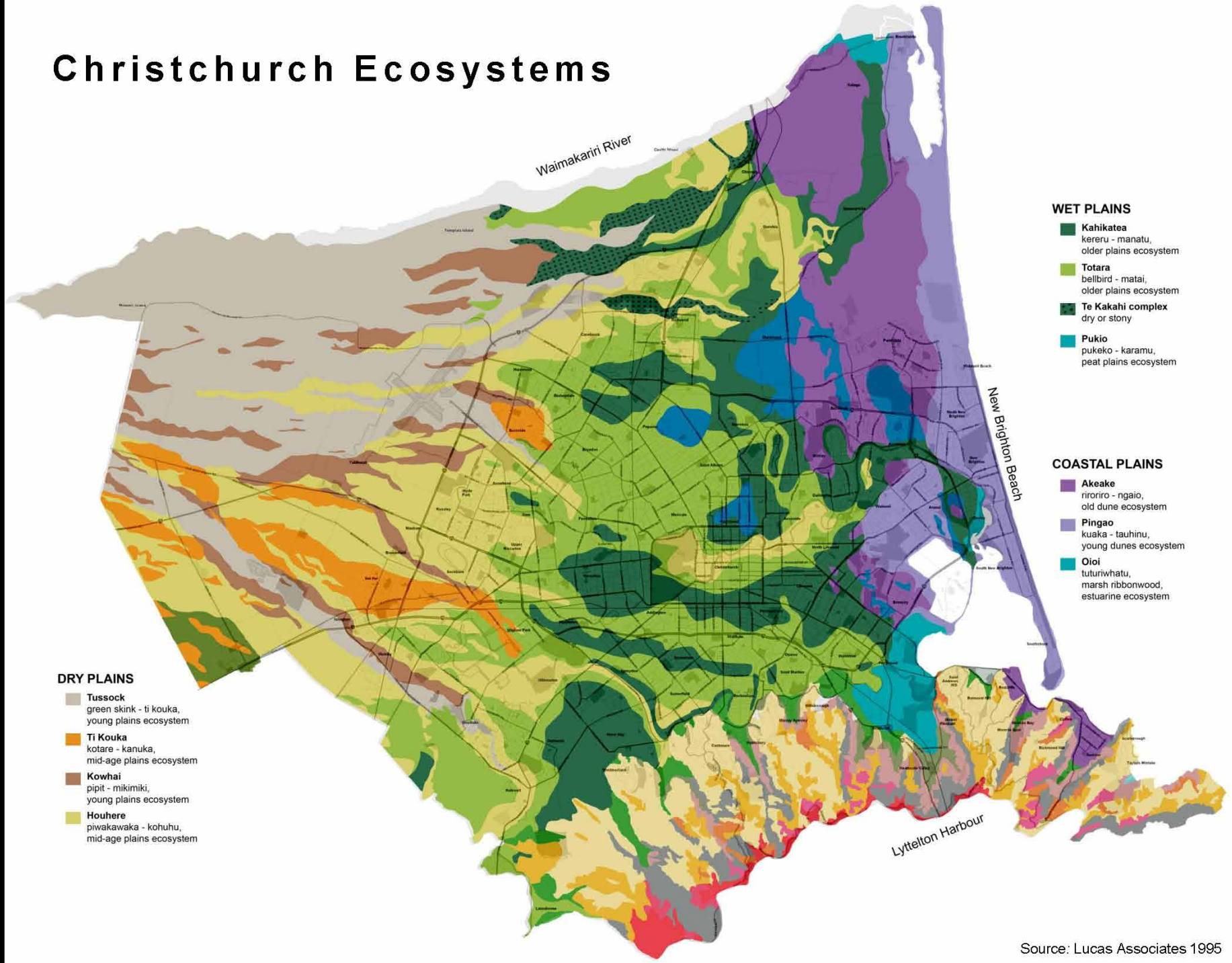


Source: Lucas Associates

- Protect natural areas
- Restore native habitat
- Enhance ecosystems for birds, fish, lizards and insects
- Create green linkages or corridors
- Restore waterways for people's enjoyment and sense of history

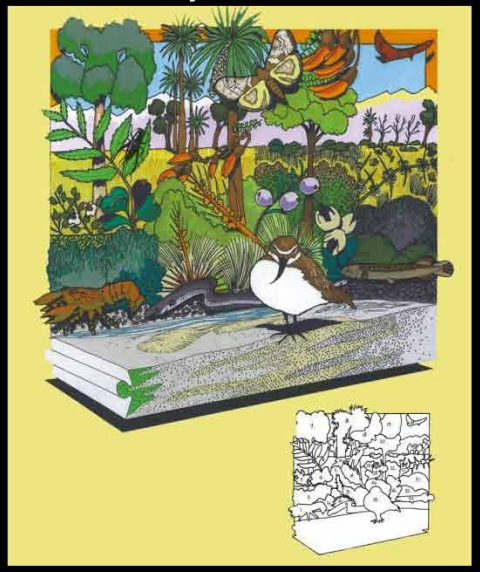
GUIDES

Christchurch Ecosystems

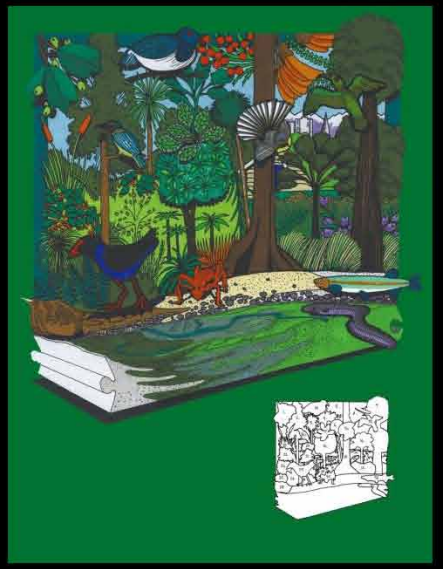


Source: Lucas Associates 1995

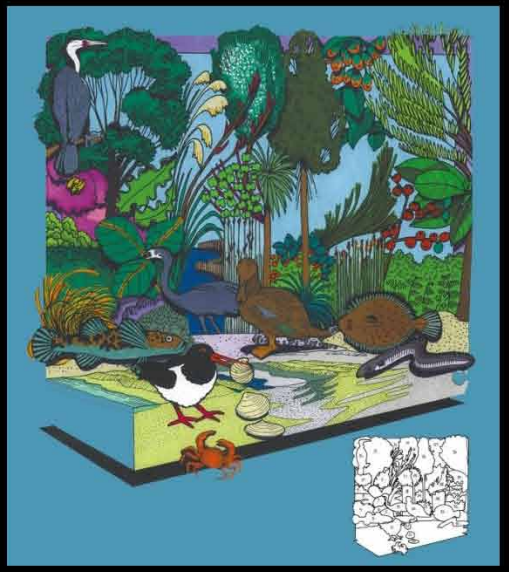
Dry Plains



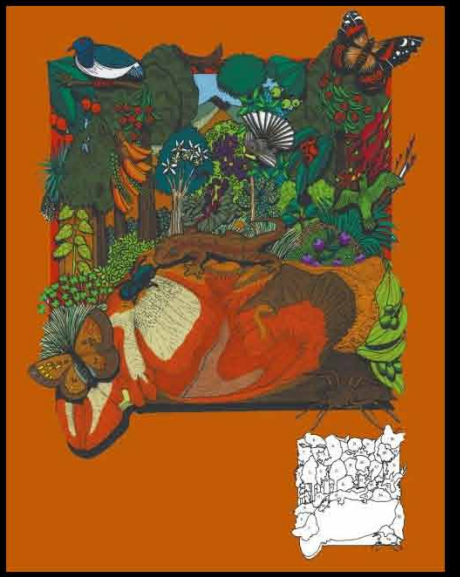
Wet Plains

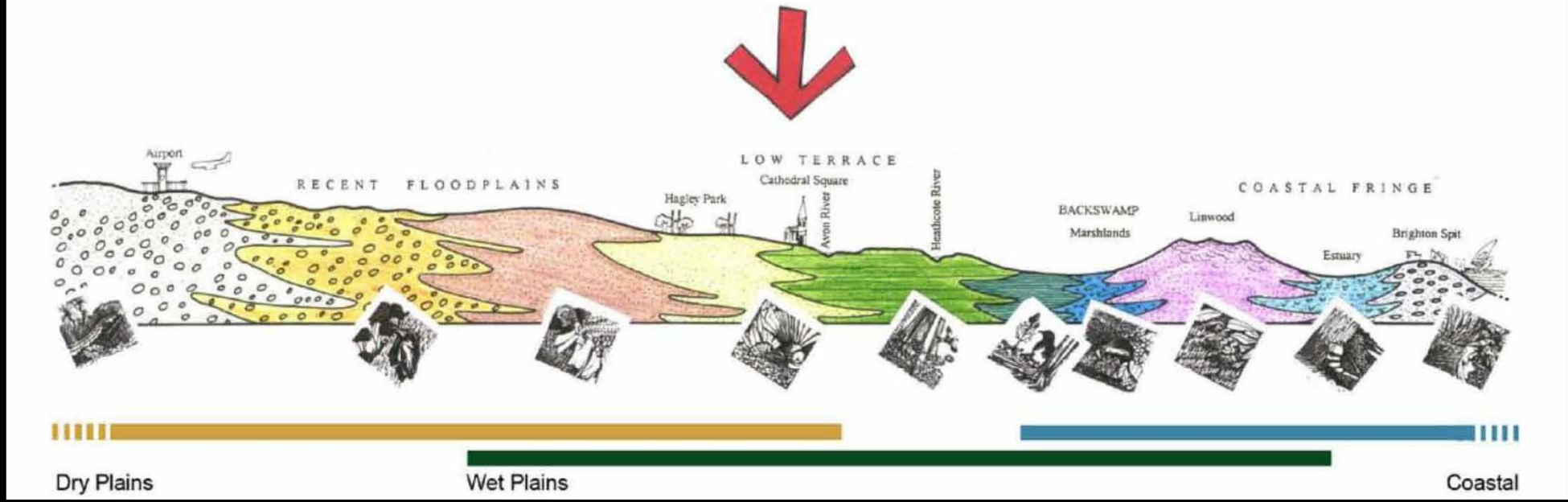


Coastal



Port Hills

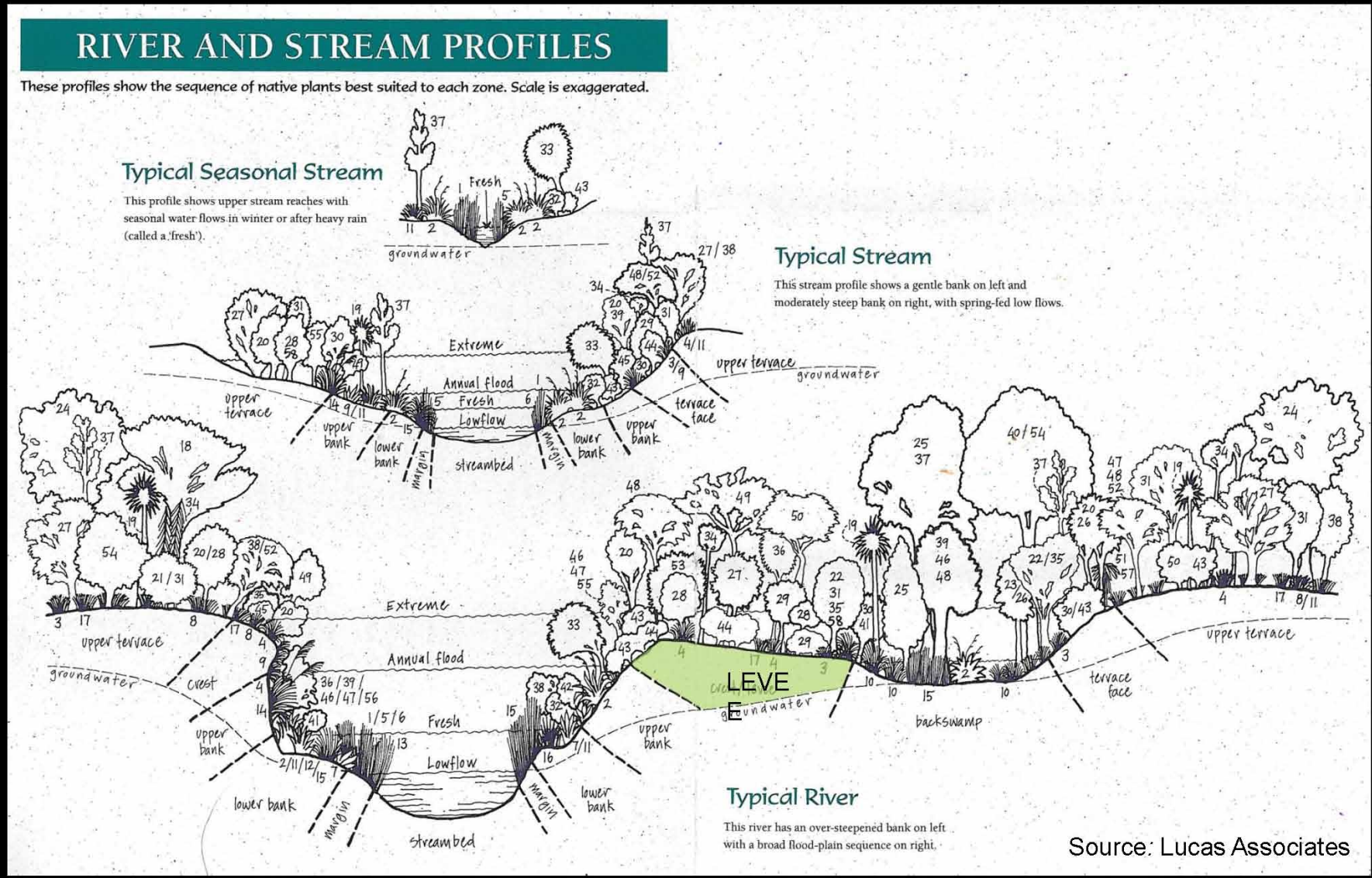




Source: Lucas Associates 1995

‘delight in diverse divaricators’

WATERWAY ENHANCEMENT



RESTORATION

WATERWAYS AND WETLANDS ASSET MANAGEMENT STRATEGY

CENTRAL CITY NEIGHBOURHOODS

VISION: To create delightful and interesting neighbourhood green space in high density living areas through the imaginative design of stormwater management systems in an integrated way with streets and parks.

STRATEGIES:

- Provide mitigation for the adverse effects of increased urban runoff from high density development in a environmentally sensitive way.
- Compensate for the loss of private green space that occurs in high density living areas by contributing to urban renewal projects.
- Improve community understanding and involvement with the waterway network by the use of icons, artworks and interpretation.
- Acknowledge the strategies as a means of implementing Community Board objectives.
- Work in an integrated way with Parks Unit, City Streets and the Urban Design Team.
- Establish recreational opportunities, access and linkages along waterway corridors and to streets and parks.
- Enhance and add meaning to urban neighbourhoods by opening views to waterways and incorporating heritage values in design.
- To create imaginative concepts for high density neighbourhood that form the basis for collaborative effort by the Council Units and developers.
- Reflect and reinforce unique neigbourhood character through restoration, protection and 'daylighting' of drainage utilities.
- Restore natural values to urban waterways and promote ecological linkages.
- Integrate waterways and swales into streetscapes and gardens.
- Establish attractive ponds to mitigate potential flooding.
- Protect and where possible restore baseflows.

CITY PLAN OBJECTIVES

The Draft Strategy is to be regarded as one of the methods of achieving the City Plan Objectives and Policies relevant to the Project Area. Key sections include:

1. Natural Environment – Water; – Natural features and habitants; – Environmental awareness.
2. City Identity – Form; – Amenity; – Heritage protection.
3. Tangata Whenua – Maori and their resources.
4. Utilities – Adverse environmental effects.
5. Subdivision and Development – Protection of natural features; – Amenities values; – Anticipated land uses.
6. Recreation and Open Space – Provision and diversity; – Efficient and effective use; – Design Appearance.

Source: Christchurch City Council 1999

THE AVON TRIBUTARIES

Waterways and Wetlands Asset Management Strategy 1999

Vision

Living in Harmony with natural waterways

•Recognize that levees erupt in earthquakes and lateral spread occurs

Strategies

- Recognise that the numerous spring-fed tributaries of the Avon River are an essential part of the character of Christchurch
- Recognise that significant lengths of waterway are degraded and that restoration is necessary for the benefit of present and future generations
- Sustain spring flows through restoration, groundwater management and monitoring
- Maintain aquatic habitats by protection from sedimentation and over-widening of low flow channels and restoration of water's edge plant species
- Promote the multiple benefits of canopy trees alongside waterways (including shade for aquatic habitats and birds)
- Promote the protection and restoration of riparian planting to satisfy ecological and human wellbeing values
- Demonstrate all the potential values of waterways and wetlands by enhancing stream flows, aquatic habitats and riparian environments within public areas, eg parks, streets, schools, university and shopping areas
- Promote understanding of ecological and wildlife values for amateur naturalists and residents by on-site talks and demonstrations
- Support the establishment of neighbourhood stream care groups and school ecological monitoring groups

Source: Christchurch City Council 1999

Commendable works

Character Area: Riccarton

Rediscover Water

Character Area: Merivale

Gardens & Views

Character Area: St Albans/Richmond/Linwood

Daylight & Restore

Character Area: Middleton

Daylight & Link

Character Area: Central City

Icons & Outfalls

Character Area: Addington

Street Features & Daylight

Character Area: Sydenham/Waltham

Bird Corridor & Pond

Character Area: Spreydon/Somerfield

The Thin Green Line

Character Area: Opawa/Beckenham

Deep Creek Natural Ribbon

LEGEND

- Major Roads
- Railway
- Open Waterways
- Piped Waterways
- Reserves/Conservation Areas/ Significant Green or Open Space

Source: Christchurch City Council 1999

WATERWAYS AND WETLANDS ASSET MANAGEMENT STRATEGY

PROJECT AREA 7
CENTRAL CITY NEIGHBOURHOODS

100 50 0 100 200 300 400 500 600 700 800 900
SCALE <m>

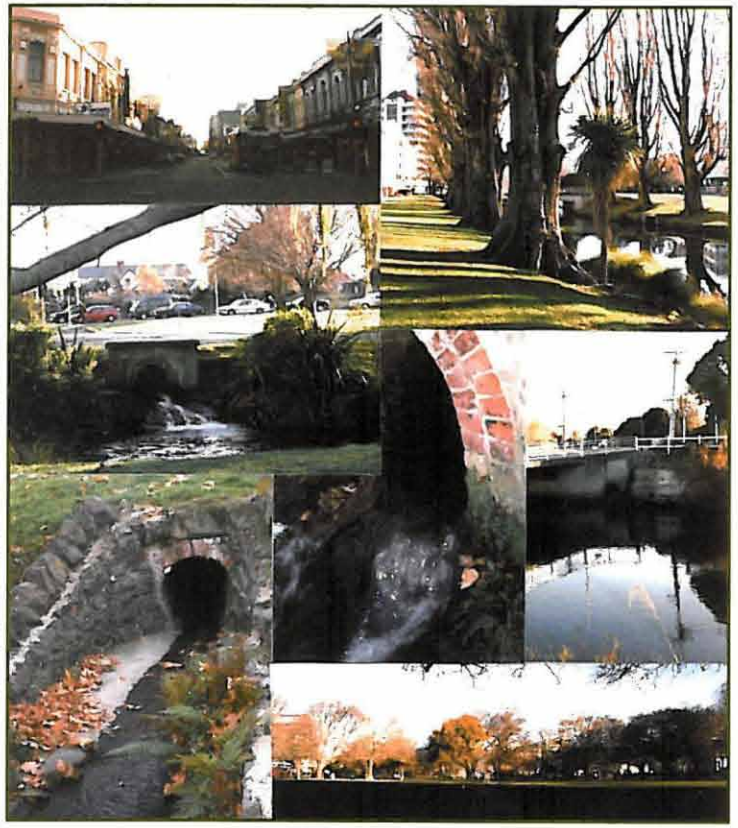
DRAWING NUMBER: L4308 SCALE - 1:20,000 AT A1
INDEXED: LP057101 SHEET: 1 OF 1

Source: Christchurch City Council 1999

CENTRAL CITY NEIGHBOURHOODS
PROJECT AREA 7

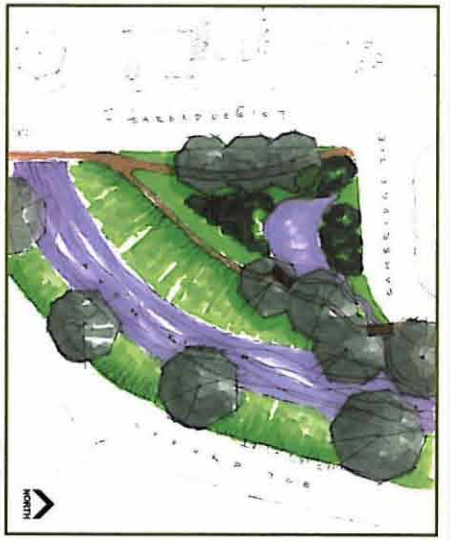
CENTRAL CITY

NEIGHBOURHOOD



Existing and Potential Values:

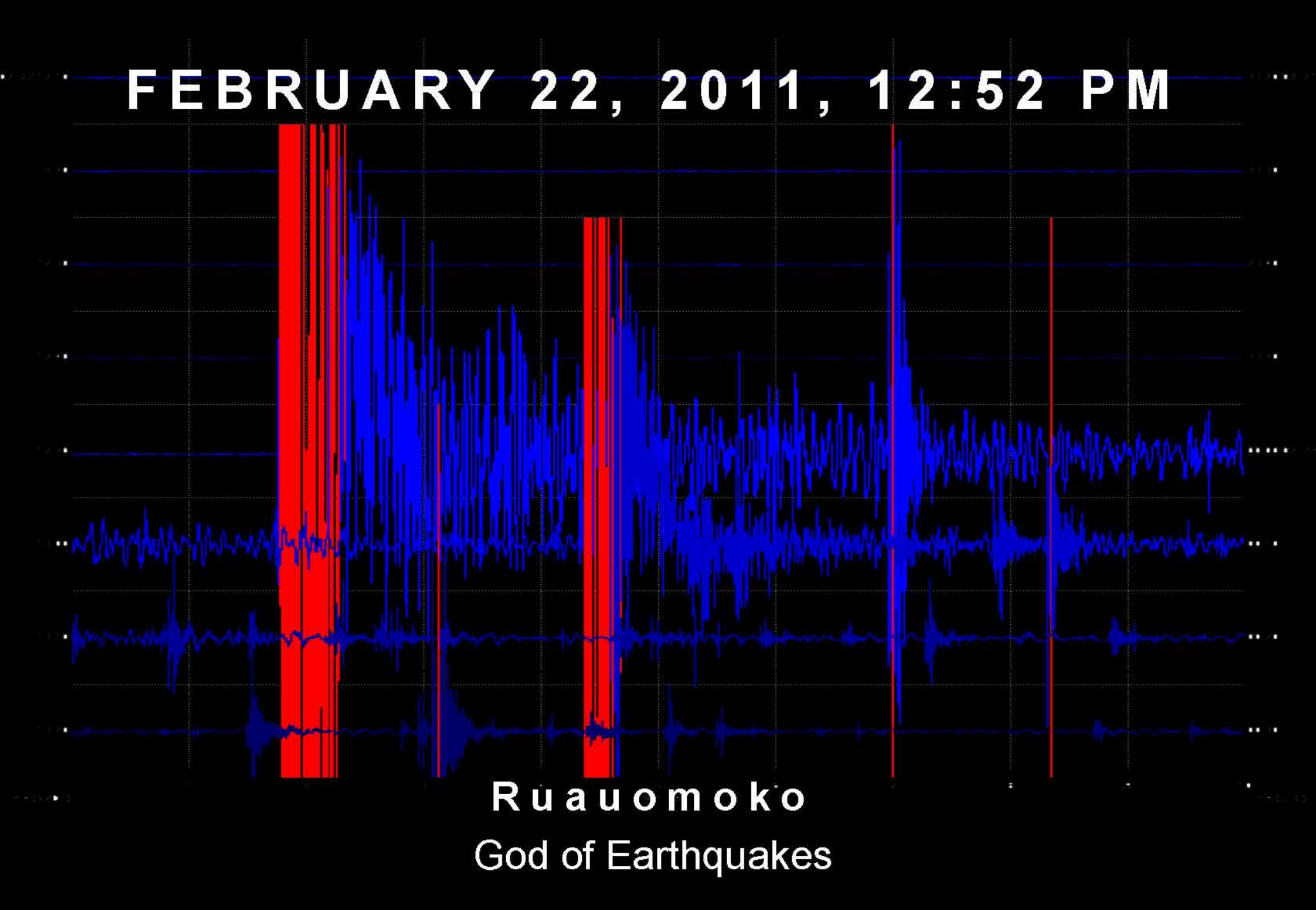
- Ecological values confined to river corridor.
- Highlight drainage system through visual cues, eg durable & artistic works beside sumps - fish symbol.
- Highlight brick barrels & interpret as historic part of drainage system.
- Enhance stormwater outfalls.
- Investigate options for 'daylighting' piped systems with regard to life of structures.



CHARACTER

Source: Christchurch City Council 1999

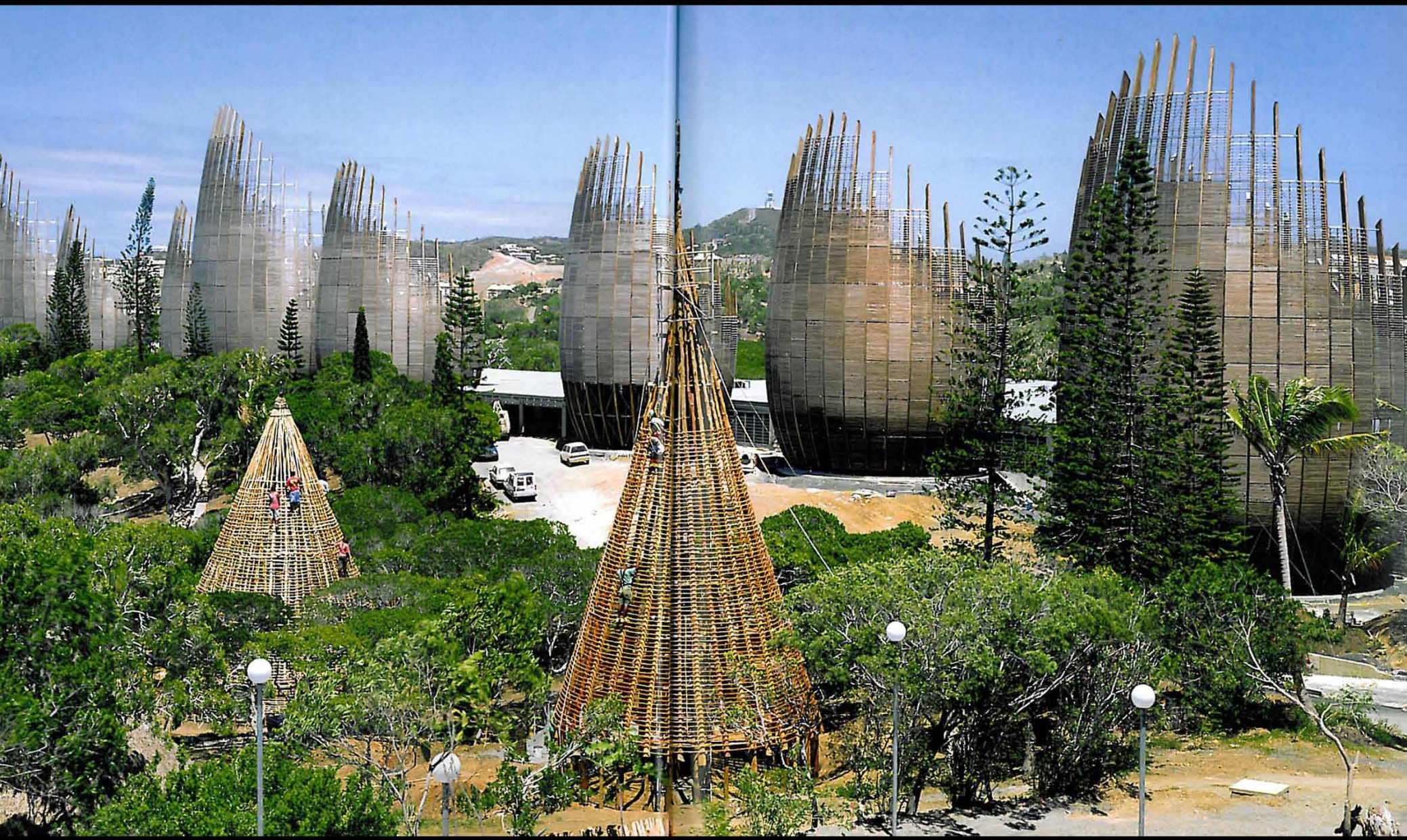
VISION: ICONS & OUTFALLS


FEBRUARY 22, 2011, 12:52 PM
Ruauomoko
God of Earthquakes

POST 2011 QUAKE
N O W

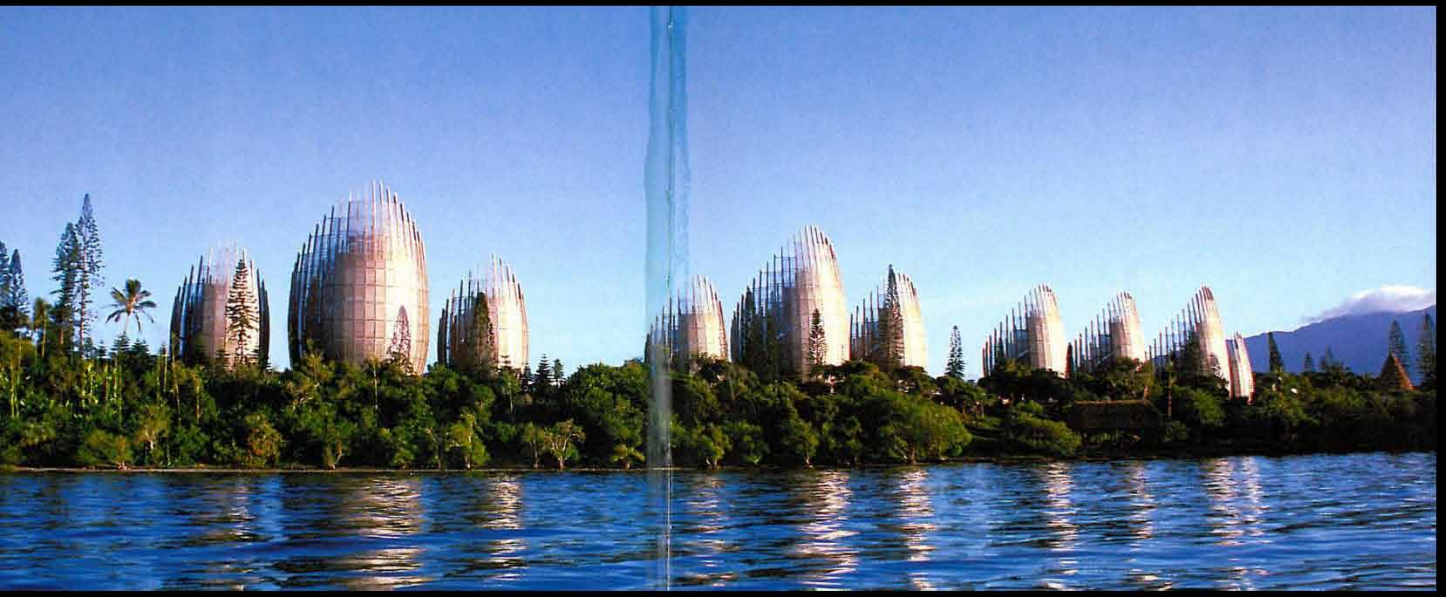
Halswell River levees ripped after the February earthquake

Tjibaou Cultural Centre, New Caledonia

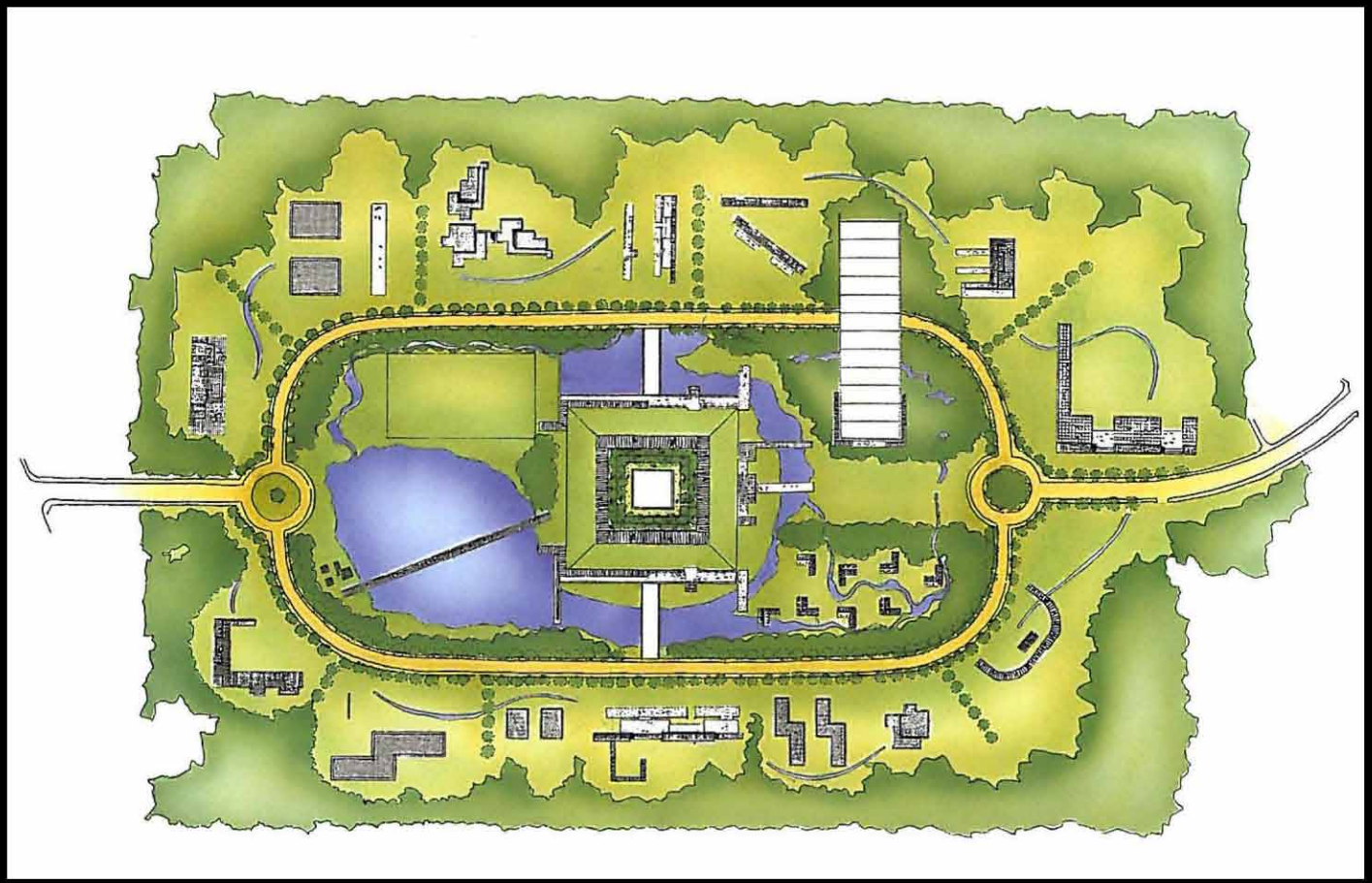


Structures expressing the nature and culture of place

Tjibaou Cultural Centre, New Caledonia



Ecology Industrial Park Plan, Japan



This is an idea for an industrial park that has a sewage disposal plant as its primary fixture. The sewage disposal plant would be in the center buried under a mound and from, the surrounding area, resemble a small island within a pond.

Self-contained developments – not reticulated

By: Nobuo Shurasuna

City of **1000 lakes** vs City of **8000 springs**

Sister City : Wuhan, China

Like Wuhan, Christchurch has a high water table, resulting in many springs and waterways.

Wuhan has many freshwater lakes. Christchurch has the sea coast.

Waterways - the springs, rivers, streams, wetlands, estuary and coast - form a natural landscape matrix and structure for this city.

Sister City : Wuhan, China

Reveal our wetlands for amenity, biodiversity & research as at Wuhan

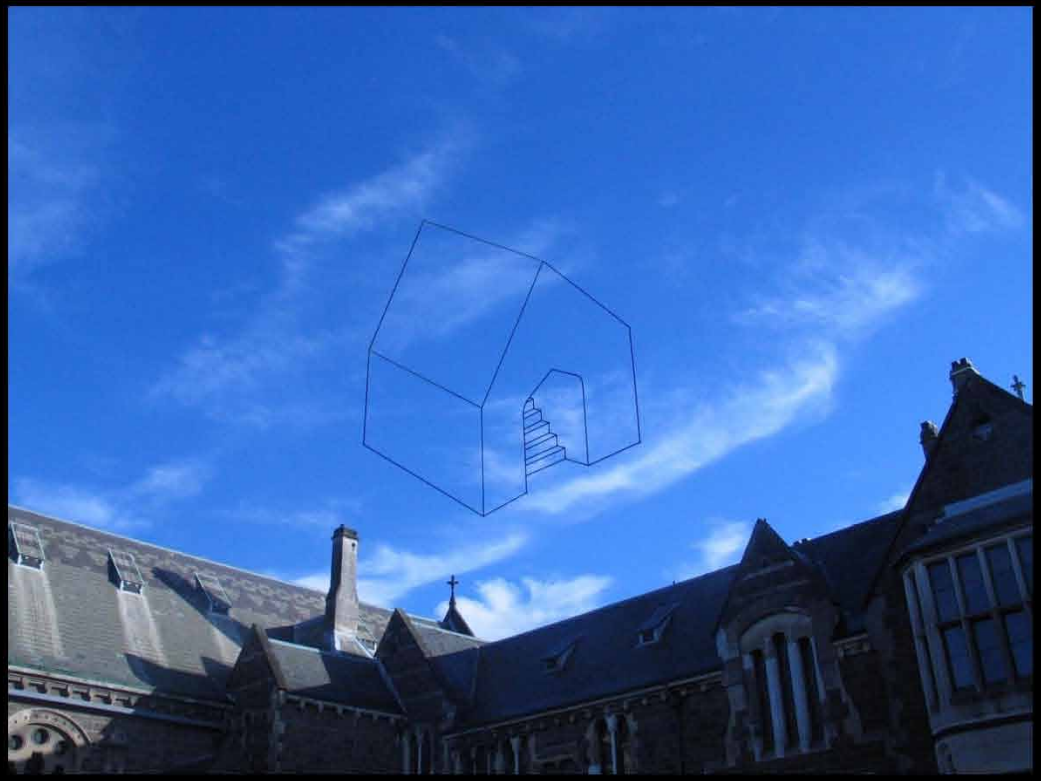
Avon River

The natural & heritage feature survives, but can the contributing springs be unearthed?

New Regent Street

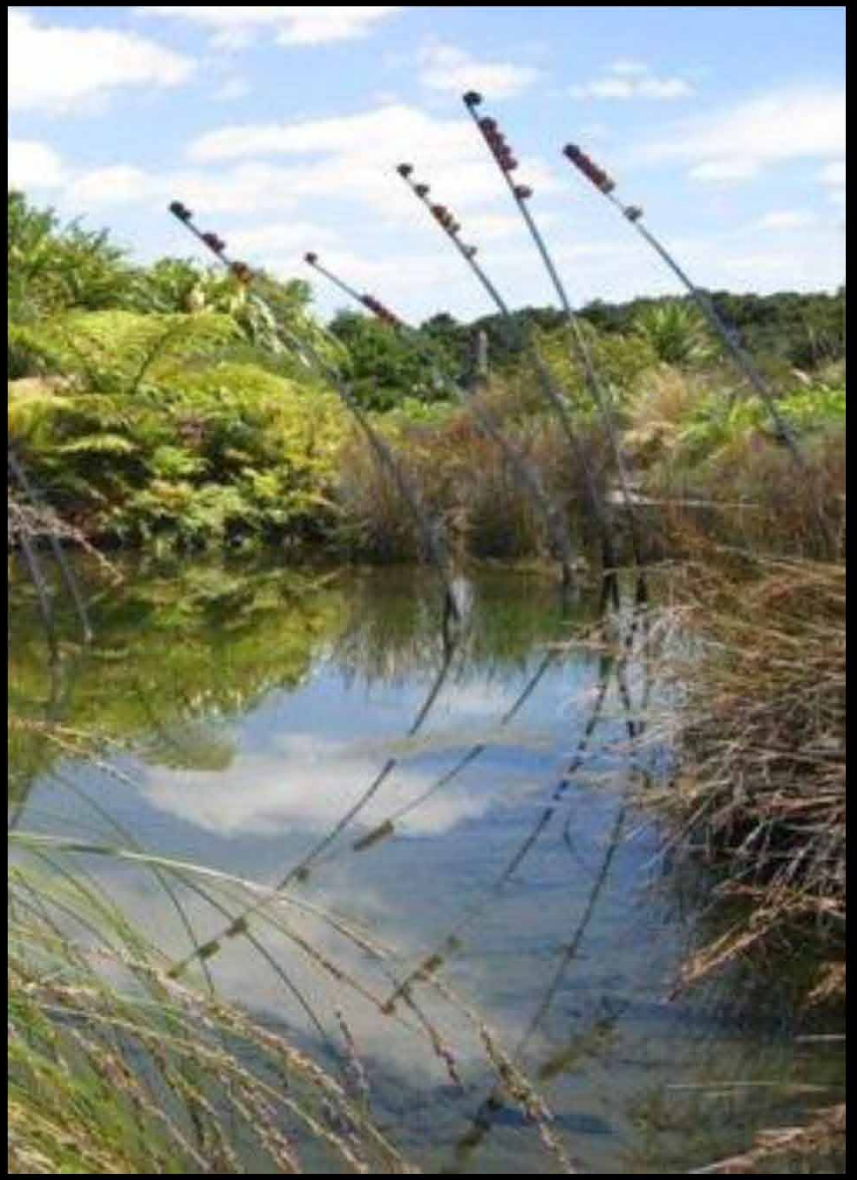
Value spaces with heritage associations

Clock Tower, Christchurch
re ‘remembering nature & culture through art’



Sculpture by Neil Dawson

'Caught in the Act of Losing You –
‘Sporadanthus Ferrugineus’



Sculpture by Colleen Priest