

displayed. A visitor should without difficulty be able to:

- identify where any particular item is displayed.
- be able to find it.
- identify it when found.

In the case of the Gardens, the last of these three requirements is essentially a matter of labelling. The other two depend primarily on a rational layout in which plant collections, access paths and other features form a coherent intelligible pattern, analogous to the rooms and corridors of a museum building.

At present the Gardens, as a whole, do not exhibit a basic structure of this kind. While many of the individual plant collections are skilfully designed, the overall pattern is essentially haphazard, being the product of piecemeal development in the past. Similarly, the path network over much of the Gardens is arbitrary and confusing, bearing little relationship to current facilities and traffic patterns. Even when aided by a map, visitors to the Gardens are likely to become disorientated and frustrated when seeking a particular item of interest.

A fundamental aim of the management plan is to address this problem by mapping out a spatial structure in which every component of the Gardens can be given a logical place. The creation of such a structure is necessarily constrained by what exists on the ground at present; nevertheless the aim must be to ensure that future physical changes, whether planned or otherwise, serve to clarify, rather than confuse, the logic of the Gardens layout.

Future development should include consideration of how the existing circulation and spatial structure might be integrated with Garden features. It must also address the problem of creating greater intelligibility in the large areas not related to existing landscape features that can aid orientation. This may require strategic location of new structures or features, careful disposition of new planting, adjustment to the network of paths, or some combination of these measures. Adjustment to the path system is the easiest to

achieve in the short term and is, in any case, required due to its current deficiencies noted above. Further bridges are required to encourage greater public use of underutilised parts of the Gardens and to facilitate improvements to vehicle circulation patterns.

Due to its essentially flat topography, the Gardens lacks any high viewing point to enable visitors to gain an overall impression and pick out the strategic features. Guide maps do not entirely address this deficiency since many people have difficulty in interpreting maps. Identifiable landmarks are therefore essential and must form a network covering the whole Gardens site.

13. Plant Collections

The Gardens contain one of the most important collections of exotic and indigenous plants in New Zealand. These include many shrubs, trees and herbaceous plants not commonly seen in commerce or private gardens.

Trees

The single most important factor contributing to the character of the Gardens is the large number of mature trees that occupy most areas. Many of these trees are now over 115 years old with the oldest recorded specimen now approximately 145 years old. Some of these trees are of national significance due to their large size and or rarity. Many more are of regional significance. For example, the alpine ash, *Eucalyptus delegatensis*, growing behind the Rock Garden, with a trunk diameter of 2.79 metres, is the largest of its species in New Zealand and, due to its trunk size, probably one of the largest of its type anywhere (Burstall, 1984). A Westfelton yew, *Taxus baccata 'Dovastoniana'*, situated on the Central Lawn, now over 110 years old, is one of only two of this variety recorded in New Zealand. It is already large and visually significant and can be expected to live for a considerable time (Burstall, 1984). In addition, many of the trees were planted by members of the British Royal family, Governor Generals, Presidents of Rotary International and other distinguished people.

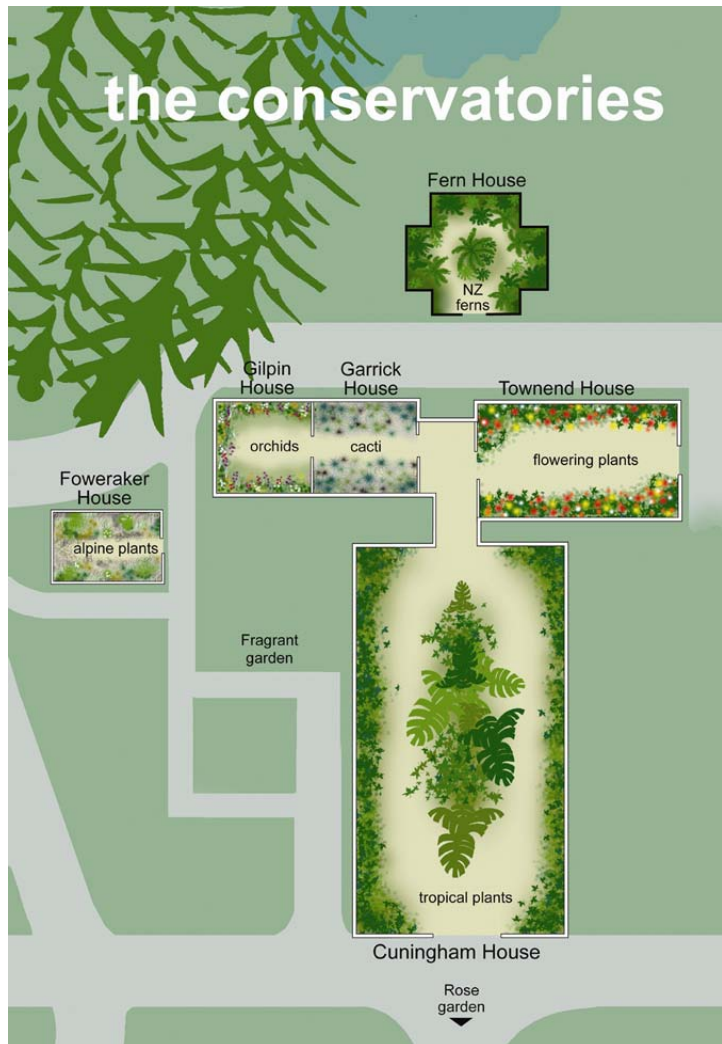
However, as the large trees have matured several problems have emerged. Many of the trees are planted quite close together and, as root systems have expanded to support the growth of the tree, severe competition for water and nutrients has arisen.

The relatively shallow depth of soil in some parts of the Gardens, being over gravel layers, compounds this problem. With many of the large trees, feeding roots extend for considerable distances beyond the crown of the tree. As a result of these factors, many of the large trees in the Gardens are now in a stressed state, which makes them especially vulnerable during periods of drought and possibly less resistant to disease. The current Gardens irrigation system is not adequate to compensate for very dry periods with the watering of the trees.

The relatively even age of most of the larger Gardens specimens, which range from 90-130 years in age, will probably mean many of these trees will eventually die within a short space of time of each other. This would result in large gaps being created over many areas of the Gardens as there are still few semi-mature trees to take the place of the mature specimens. It is only in recent years that replacement trees have been planted in larger numbers. However, their growth is often hampered by root competition and shade from existing trees.

The optimum solution for replacement planting would be to prune back or remove existing trees to create light gaps for the young trees, yet this has not been an acceptable option to date. The life expectancy of exotic trees in New Zealand is still not fully understood, as most existing large trees are part of the first generation to be planted. Experience in Hagley Park and around the city however indicates that tree life expectancy may be much lower than the maximums experienced in their natural habitats.

Within the Gardens, there is still the opportunity to plant a greater number of different species as there is currently considerable duplication of tree species in the range of mature and semi-mature trees.



Cuningham House

(Collection category – Tropical Plants)

The main tropical plant collection is housed in the Cuningham House, which was opened in 1923. It was built as a result of a bequest by Mr C.A.C. Cuningham.

The Cuningham House is divided into two main sections - a lower house on the ground floor and an upstairs gallery. High light requiring tropical plants are grown on the upstairs gallery, while those requiring lower light levels grow on the ground floor. The central ground floor portion also allows growth of the taller species.



Townend House

Overall, some 13 families, 63 genera and 223 species, varieties and cultivars of tropical plants are grown in the lower Cunningham House. Generally, each bay on the ground floor contains a different genus.

Notable collections in the lower Cunningham House are the palm collection (over thirty species), the *Philodendron* collection (over 48 species), the *Peperomia* collection (over sixty different species) and the *Dieffenbachia* collection (with over thirty different species)

Townend House

(Collection category – Cool Flowering House)

A succession of popular greenhouse plants are displayed in the Townend House, which was built in 1955-56. The Townend House is linked to the Cunningham House by a covered access-way.

Plants featured in the Townend House include *Primula malacoides*, *P. obconica*, cinerarias, cyclamens, coleus, schizanthus, pelargoniums, tuberous begonias and chrysanthemums. Various cooler climate orchids are also displayed when in flower.



Cunningham House

The upper House contains 34 families, 109 genera and 569 species, varieties and cultivars of light-requiring tropical plants. Notable collections here are for *Pilea* (ten species), *Hoya* (69 species), *Ficus* (27 varieties) and *Tillandsia* (20 plus varieties).



The pot plants required for the displays are all raised in the Gardens propagating houses. Generally, the aim of the displays in the Townend House is to grow collections of indoor flowering plants that would grow in Christchurch. Approximately 25-30 displays are featured each year, with up to fifteen varieties of plants in each. Plants are sprayed once a month to keep them disease and pest free. Over the cooler seasons the house is heated to 13-15°C.

Garrick House



(Collection category – Cactus Collection)

Situated immediately to the west of the Townend House is the Garrick House, built in 1960. The house is named after Mr M. Garrick, who donated a collection of cacti and succulents to the Gardens. The current collection consists almost entirely of cacti species, succulents are stored in the adjoining nursery. The collection contains approximately 900 species of cactus which makes it the most extensive public authority display in New Zealand. However, by private collection standards the collection is quite small. A feature of the display is the desert diorama which forms a backdrop to the desert garden display (see right). This was created in 1958.

Smaller potted specimens on a raised bench are divided into two groups - North American Species and South American Species. Many of the cacti on display are quite difficult to grow. All are well labelled, some are very rare. Generally, only one representative of each species is grown. All the potted cacti are re-potted every year. The cactus house is only heated in winter when the

temperature is maintained above 1-2°C to prevent frost damage to some species.

Security for the cactus collection has been a major problem. Placement of a metal grid between the viewing glass and the roof has reduced theft and vandalism of the potted collection. Steps are being taken to prevent damage to the desert gardens by vandals.

The overall aim of the display is to educate the general public about cacti – about their diversity, country of origin and ecology. These aims are only partially fulfilled at present. At present, the desert diorama gives an idea as to one type of environment that some cacti live in.

Much more could be done in this respect. For example, few people know that some cacti are covered by snow in winter, grow at high altitudes in the Andes or grow by the seashore. Unfortunately, space in the Garrick House is very restricted and some expansion is required to give scope for a better display.



Gilpin House



(Collection category – Orchid/Carnivorous Plant Collection)

The Gilpin House was built in 1960. It was originally used to house the bromeliad collection, which has now been transferred to the Cunningham House. A range of orchid and carnivorous plants are part of the feature display in this House.

Foweraker House

(Collection category – Alpine Plants)

The Foweraker House contains a potted collection of native and exotic alpine plants that require protection. This is because of these plant's dislike of overhead watering, and is necessary to protect their flowers from the elements, to provide specialised soil conditions or because the plant's small size does not suit them to be growing in the main Rock Garden.

Different plants are displayed in the House throughout the year to provide variety and interest. The security grills, installed to reduce plant theft, unfortunately detract from the display. The Foweraker House display is limited by lack of space. The small planted bed to the north of the House is currently planted with an assortment of rock garden plants.

Bonsai collection

A small collection of bonsai plants is contained in a shade house behind the nursery. The location of this collection means it is missed by many visitors. Theft has been a problem.

Fern House



The Fern House was constructed in 1955 from bequests made by Mary Rothney Orr and James Foster. It enables growth of a number of New Zealand ferns that would be difficult to grow outdoors. Several large ferns are contained in the House.



Specific groupings and gardens

Pine Mound

Planted in the early 1870s is a group of *Pinus pinaster* trees, which forms a distinctive feature accentuated by their position on the old sand dune at the eastern end of the Archery Lawn.

These trees on the Pine Mound are mature, maintaining foliage only at the very tops of the trees. For safety reasons, the dead branches have been removed up the whole length of the trunks. Despite this the attractive colour of the bark and the strong visual character imparted by these tall pine groups makes them a significant feature of the Gardens. The greatest threat to the pines is wind damage, which has claimed several trees in the last few years.



The slopes of the Pine Mound feature a microclimate in which a selection of half hardy South African plants (mostly from the *Proteaceae* and *Ericaceae* families) grow well.

Cherries

There are numerous individual cherries trees placed around the Gardens. There is, however, two groups of trees that are worthy of special notice. These are the cherries along the Riccarton Avenue frontage (*Prunus yedoensis*) and the Japanese cherries on the Cherry Mound. Some of the cherries may be of conservation value, originating from a Japanese importation.

Eucalyptus Group

The trees in the *Eucalyptus* group behind the Rock Garden are mostly in good condition. The group contains an imposing specimen of *Eucalyptus delegatensis*. The rest of the group have not been named. These trees comprise the sole survivors of what was noted on a 1927 map as the Australian Section.

The Rock Garden



Spring and early summer are the times of greatest floral display in the Rock Garden. This popular garden feature was first established in 1917 and extended in 1922. The current version of the garden was opened by the Governor General, Lord Galway, on 27 October 1939.

Situated on the northern side of the Harper Lawn, it has an ideal position on the southward facing slope for the growth of many alpine plants.

Adjacent to the Rock Garden are many *Rhododendron* species and hybrids with their associated plants of hostas, hellebors and lilies. These, together with other *Rhododendron* collections in the Gardens provide a special focus for this genus.

Erica and Heather Garden

This garden features an assortment of *Erica* and *Calluna* cultivars. The similarity of plant form and flower colour between these helps to create a harmonious whole and makes this garden an attractive compliment to the adjacent Rock Garden. An opportunity may exist to introduce conservation planting of species of *Erica*.

New Zealand Section

Extending from the Water Garden to the Avon River in the south, and to Beswicks Walk in the east, the New Zealand Section features native trees, shrubs and herbs.

This area could easily be overlooked by visitors who are not familiar with the general layout of the Gardens. It is one of the most important feature areas of the Gardens, particularly for tourists, but because of its position it lacks prominence.

The section is divided into two main parts - the Cockayne Memorial Garden, which was opened in 1938 as a living memorial to one of New Zealand's greatest botanists, and the bush area, where plants have been established to grow naturally. The Cockayne Garden also has two sections - a sub-alpine garden featuring plants collected from the mountain regions of New Zealand and a more formal section containing beds of shrubs and small trees in a lawn setting. The collections in this area are in need of refurbishment and enhancement.



The New Zealand Alpine Garden, though, has experienced environmental changes in its growing area. The large beech trees to the north shade the garden extensively through the year, except during mid-summer, and poor drainage in winter

and heavy soils are limiting factors. Yet, soil amelioration over recent years has improved growing conditions and a wider variety of plants can now be grown.

The general condition of most of the trees in the native bush section is good, although the die-back of *Hoheria*, from natural causes, is a problem here as it is in other parts of the country. In a closely planted area meant to represent natural forest conditions, the competition for light is such that some trees have become drawn up and other suppressed by the canopy of the larger trees.

The New Zealand Bush Section contains a fairly wide range of trees that are suited to the Christchurch climate, but most appear to be in random plantings where there has not been consideration given to grouping trees and other native plants together in a way that accurately depicts the natural plant associations found in the wild.

Azalea Garden

Between the Water Garden and the children's playground is an area known as the Azalea Garden. Large beds of *Ilam hybrid mollis azaleas* are situated in a semi-woodland setting under the canopies of mature oak trees (*Quercus robur*). The *azaleas* usually flower around mid October. The flower show provided by the *azaleas* is extended through having numerous magnolias planted throughout the beds - *Magnolia kobus*, *M. soulangeana* and varieties, *M. campbellii* (one of the highlights of the spring gardens) and *M. wilsonii* and *M. sieboldii*.

Beswicks Walk, Lime Avenue

An avenue of lime trees (*Tilia x europaea*) was planted in August 1917. These trees are especially attractive in autumn when the leaves colour yellow. All specimens along the Walk are in a healthy and sound condition and co-exist with attractive crown ferns. Apart from some minor pruning to lift the canopy to preserve the pedestrian sight line between the trees, little maintenance work is required.

The integrity of the Walk is compromised to some degree by plantings of *Ginkgo biloba* at the driveway intersections of the walk. The

considerable difference of this species with the crown fern detracts from what would otherwise be a totally uniform avenue effect.

Rose Garden



The rose garden is situated in the centre of the Gardens and is one of the most popular attractions.

The present circular layout, enclosed by a Yew hedge and with radiating paths, dates from 1936 during the time of James McPherson as curator. It replaced an earlier and larger rose garden started in 1909 by James Young. The earlier rose garden was reputed to have been the largest in Australasia.

The 1936 rose garden originally featured a circular pool in the centre. This was later replaced by the Thomas Stevenson sundial, constructed of Halswell stone with a black marble top.

The roses are displayed in such a way that visitors can see examples of those most suitable for their own garden requirements. The Rose Garden presents a very attractive picture during the summer months.

Fragrant Garden

The fragrant garden is sited on the west side of the Cuninghame House.

Australian Border

The Australian Border contains several large eucalypt trees, some of which require identification. The collection is generally well presented and features many Australian plants not normally seen in Christchurch.

The Herb Garden

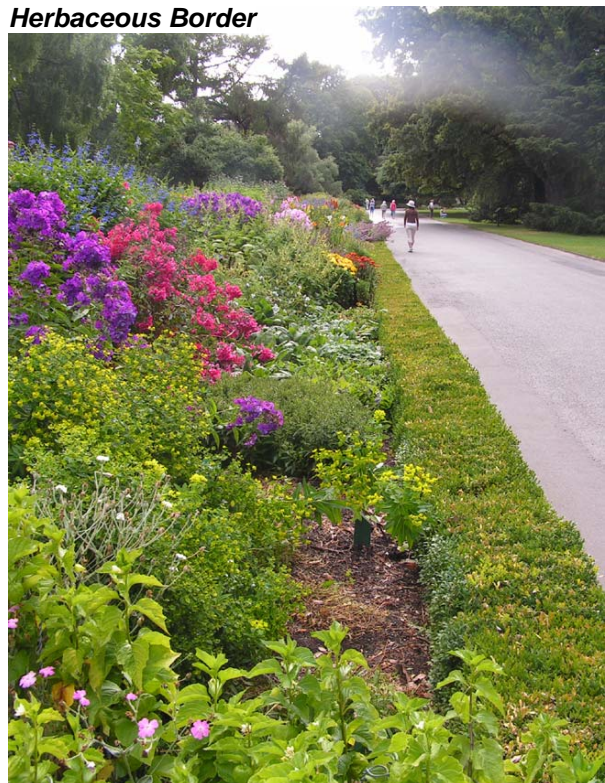


The Herb Garden was constructed in 1986 on the site of the former Clematis Garden and was refurbished from 2005 to 2006. It contains an extensive range of plants used for culinary and medicinal purposes.

Maples

A significant grove of Japanese maple cultivars (*Acer palmatum*) forms an attractive feature situated at the western end of the Herbaceous Border and Archery Lawn. The plants were originally donated by Nairns Nursery in Christchurch and require identification and naming.

Herbaceous Border



Through summer and early autumn the Herbaceous Border features a continual display of flowering perennials. The border is 159 metres long by 6.4 metres wide and is divided in the middle by a paved area containing an old sun dial and stone seat. The sun dial was presented to the Gardens by the Superintendent of Canterbury, William Rolleston, in 1873.

The Herbaceous Border contains species and varieties of herbaceous perennials.

The Herbaceous Border is a feature worthy of protection, not only from an historical and visual point of view, but also because it contains such a large collection of herbaceous plants not commonly seen in modern times.

Heritage Rose Garden



The Heritage Rose Garden was established in 1952 and redeveloped in 1999-2000. Situated on the south side of the Murray Aynsley Lawn, adjacent to the Christchurch Hospital grounds, this garden contains a collection of rose species, hybrids and varieties commonly cultivated in the 18th, 19th and early 20th centuries.

Primula Garden

The Primula Garden was formed in 1955 on the banks of Addington Brook where it flows across North Hagley Park from under Riccarton Avenue to the Avon River past the Murray Aynsley Lawn.

Stream bank levels have been altered to provide conditions for the growth of candelabra *primulas* and other plants suitable for moist soils. Some of the species grown are *Primula japonica* and its varieties, *P. bulleyana*, *P. burmanica*, *P. pulverulenta*, *P. beesiana* and *P. alpicola*.

Pinetum

An interesting collection of pines and other conifers is located in Hagley Park between the Avon River and the United Car Park.

The collection appears to have been planted after World War II. Until 1961 the southern portion of the Pinetum was used as a rubbish dump. This was cleared and grassed.

Most trees are in a good condition.

The *Pinus pinea* group was planted in 1963 to commemorate the centenary of the Botanic Gardens. Apart from the possibility of planting along the river bank, there is little space available for increasing the numbers of tree species in the Pinetum.

Sequoiadendrons



Large *Sequoiadendron giganteum* trees line the edge of the United Car Park. They are one of the main features in the Gardens. The construction of the main driveway from Riccarton Avenue and the adjacent United Car Park was undoubtedly the principal cause of the progressive decline in the condition of the trees through drainage to the trees' root systems.

Armstrong Lawn

The Armstrong Lawn contains well spaced specimen trees, deciduous and coniferous, and includes an excellent specimen of *Fagus sylvatica* 'Asplenifolia'.

Little opportunity exists for further tree planting without spoiling the view across the lawn and constricting existing tree growth.

River Border

The River Border runs parallel to the Archery Lawn, from the Armstrong Lawn to the Cherry Mound. It contains a miscellaneous collection of shrubs and small trees

Chinese Border

The area known as the Chinese Border is a curved area to the west of the Maple Grove and contains a few Chinese species mixed together with other plants.

Water Garden and surrounds

Based on the shingle pits of the 1920's, the Water Garden has been developed into a cool, peaceful area enclosed by large trees and shrubs. During spring and autumn, the margins of the ponds display flowering plants. The ponds also contain large numbers of water lilies. The pond to the west of the main lake is surrounded by an assortment of exotic plants, a Yucca collection and a *Ceanothus* collection.

Playground area

There are some comparatively rare specimen plantings in the playground area. Of these, the large *Metasequoia glyptostroboides*, *Sequoia sempervirens* and *Tilia petiolaris* are particularly worth noting. Most of the trees are in a healthy and sound condition with attractive natural crown forms, although the area is rather overcrowded.

Stafford Lawn

The Stafford Lawn to the southwest of the Rose Garden contains a range of large deciduous and coniferous trees, some of which are unnamed. Many of the trees have been planted close together and require thinning. The larger conifers

appear to be remnants of a previous conifer collection.

Information Centre Lake



This is an attractive lake surrounded with woodland type plantings. Swamp cypress trees and *gunneras* are notable features.

College Border

The College Border is situated between the Herbaceous Border and the Christ's College boundary wall. It contains a number of trees and mixed shrubs.

Archery Lawn



This lawn contains deciduous broadleaved trees and conifers growing in a reasonably well spaced situation around the perimeter of the lawn.

The Archery Lawn has a row of five magnificent *Sequoiadendron giganteum* trees, which were raised from seed in 1873 and planted along the north side of the lawn. They are all in good condition and are likely to remain in this condition

for a further thirty-five years or more. Two other notable trees grow between the lawn and the main path. These are *Quercus suber* (Cork Oak) and *Q. ilex* (Holm Oak).

Some major branch breakage has occurred to the large *Cedrus atlantica* 'Glauca' in past storms but the tree still remains a reasonably well formed example of the species. The large *Tilia cordata* and the *Tsuga heterophylla* are excellent examples of these species.

The Archery Lawn also contains commemorative plantings by Queen Elizabeth II and other notable people. Most trees on the lawn have a life expectancy in excess of thirty-five years.

Daffodil Woodland



The two hectare Daffodil Woodland extends from south of the Avon River in North Hagley Park to the public hospital grounds and the Murray Aynsley Lawn. The daffodils were initially planted in 1933 and now number in the thousands. After flowering, the leaves are allowed to die down naturally. The daffodils are a major feature of spring in Christchurch.

The main tree species which comprise the original woodland tree plantings are *Quercus robur*, *Quercus cerris*, *Fraxinus excelsior*, *Ulmus x hollandica* and *Acer pseudoplatanus*. There is an excellent specimen of *Quercus robur* growing near the hospital grounds boundary.

Most of the Daffodil Woodland trees have a similar useful life expectancy as those in Harman's Grove. The trees require the same pruning attention as those in Harman's Grove.

A glade surrounding the trees contains specimen group plantings of trees, such as *Betula nigra* and *Acer griseum*, which are visually compatible with this ornamental woodland setting. However, the podocarp trees planted in the same glade would

perhaps have been better situated in an area closer to the New Zealand native section in the Gardens proper where botanical comparisons could more easily be made.

Harman's Grove



The Harman's Grove extends westward from the Bandsmen's Memorial Rotunda. The Grove tends to be windy and cold for much of the year, except on hot days when the shade is welcome. Traffic noise from Riccarton Avenue is very intrusive.

The main species here are *Quercus cerris*, *Quercus robur*, *Fraxinus excelsior*, *Acer pseudoplatanus*, *Betula pendula*, *Prunus yedoensis* and *Carpinus betulus*. There are several very large specimens of *Quercus cerris*.

The flowering feature plantings of *Prunus yedoensis* along the Riccarton Avenue boundary are becoming increasingly suppressed by the larger growing *Carpinus betulinus* planted alternately with the *Prunus yedoensis* and other large trees behind. Pruning the trees encroaching on the *Prunus* will only provide a relatively short term solution to the problem and the decision should be made as to which trees are to be retained.

Northwest Corner

This area contains a miscellaneous assortment of trees and shrubs, including a group of *Pinus pinaster* on a sand hill and a reasonably large *Araucaria bidwillii*. A semi-circle of rhododendrons is made up of mostly *Rhododendron. ponticum* vars. The lower lying areas are subject to water logging in winter.

Bedding Displays

Annual bedding displays are a feature of both the Armstrong Lawn, as well as areas adjacent to the Gardens Café / Tea Kiosk. These displays complement the formal Gardens axis from the Museum to the Curator's House Restaurant and the path from the Rolleston Avenue entrance to the Evelyn Couzins Gates and Archery Lawn.

Comment

Habitat areas

There are a number of areas in the Gardens with special characteristics that make them suitable for ecological or habitat related displays. These include the river margins, the ponds, the woodlands, dry north-facing slopes and microclimate sites.

The conservatories

The conservatories display plants and environments which are not typical of outdoor Christchurch. They provide the opportunity for research on current environmental and economic issues for tropical plants. Simulated habitat creation in the glasshouses is one method which could be used more to further people's understanding of tropical regions.

In addition to displaying plants locally rare in cultivation, the Cuningham House could play a much greater role in education.

Cultural Link Gardens

Exploration of the cultural uses of plants has had limited application in Christchurch. Apart from amenity displays the only major development in this area is the herb garden. The most obvious deficiency is the lack of recognition of traditional Maori use of native plants, although this is likely to be emphasised in other city parks in the future. With increasing cultural diversity in New Zealand there may be other opportunities for this type of planting.

Period Gardens (display of old cultivars)

Current exhibits, such as the Heritage Rose collection, have the potential to be transformed into period gardens, featuring appropriate plants

from the horticultural era in which the plants were current.

Conservation Gardens

Use of the Gardens to conserve endangered plants is still very much in its infancy. There may be further opportunity to develop areas to further promote plant conservation.

14. Buildings and structures

General character

The present buildings are generally not well related, consisting as they are of various forms, materials and colours. Varying degrees of integration into the Gardens setting have been achieved with associated planting.

The historic character of the eastern end of the Gardens is influenced by the Arts Centre, Museum, Curators House and various statues.

Descriptions

Potting shed

The potting shed was built in 1991 and, in addition to normal potting facilities, incorporates office space, seed storage facilities and a laboratory.

Cuningham House



Cuningham House was opened in 1923 as a result of a bequest by Mr C.A.C. Cuningham. It is a large, stately structure of architectural importance and is listed with the New Zealand Historic Places

Trust. A spacious staircase leads to a large peripheral gallery where an extensive collection of tropical plants are displayed.

Heating of the Cuningham House usually starts in March and ends in November. Currently, heat comes from hot water via pipes from the boiler house. The heating pipes are situated approximately 300mm above ground level under the display benches. Air in the glasshouse heated from the pipes is kept at a temperature of approximately 18-20°C over the late autumn, winter and spring months.

The House was designed at a time when growing conditions for tropical plants were not fully known and modern environmental controls not available. Consequently, many aspects of its construction are not entirely satisfactory for good plant growth.

For example:

- The volume of air to be heated in the House is enormous. As a result, heating requirements are high.
- Light levels are inadequate for growth on the ground floor benches under the gallery. Therefore, supplementary lighting is required. Plants generally only last four months on the benches.
- The heating pipes are too close to plants on the lower benches, thus reducing growing efficiency.
- Ventilation control is inadequate.

Townend House



The present Townend House was erected between 1955 and 1956 on the site of the former same-named house donated in 1914 through the estate of Annie Townend, a Christchurch resident and former owner of Mona Vale.

Townend House is essentially a conservatory where a regular succession of popular greenhouse plants are grown.

As with the Cuningham House, lack of environmental control causes problems with plant growth; that is:

- Lack of insulation allows greater heat loss in winter.
- The high ceiling creates more area to heat.
- Lack of light causes elongation of plant growth. For example, *Begonias* seem to suffer in this respect.
- Poor ventilation causes problems with disease control and excessive temperature build up in summer (it can reach 45°C on a hot day).

Difficulties are thus experienced in showing plants for long periods. *Gloxinias*, which should be able to be displayed for two to three months, only last one to one and a half months, which is roughly half their potential show life. With modern glasshouse management, it should be possible to keep temperatures to within an optimum range.

Garrick House

Garrick House was constructed in 1957. It offers a considerable insight into the Gardens' diverse cacti collection.

While many of the cacti are displayed in pots along one wall, a feature of the house completed in 1958 is a diorama depicting a desert. This is in need of maintenance. In from this is a selection of large living cacti.

Garrick House is named for Mr M. Garrick, a local resident who donated a large collection of cacti and succulents to the Gardens in the late 1950s.

Gilpin House

Built in the 1960s, Gilpin House is a modest sized conservatory featuring tropical collections.

Foweraker House



Foweraker House was named for Jean Foweraker, a Christchurch alpine plant enthusiast and donor of many collections of alpine plants to the Gardens.

Fern House

The Fern House was constructed in 1955 as a result of bequests from Mary Rothney Orr and James Foster.

Curators House



This Tudor style building, which is a focal point of the Rolleston Avenue entrance to the Gardens, is now being operated as a restaurant and education facility. It is the second dwelling to be constructed on the site and was built in 1920 at a cost of 2,300 pounds. The house was financed from the sale of gravel and sand removed from areas in the south-west part of the Gardens.

Gardens Café



The Gardens Café is in a unique building that is based upon an octagonal shape and very much a part of the Gardens heritage. The original building was built in 1911 and known as the Tea Kiosk. It burnt down and was replaced in 1922.

Bandsmen's Memorial Rotunda



Situated at the eastern end of Harman's Grove, south of the Avon River, in North Hagley Park, this rotunda was thought to be the first memorial to be erected in New Zealand to commemorate the sacrifices of Canterbury bandsmen who lost their lives in the First World War. It was officially opened by MP Sir Heaton Rhodes on the 19th of September 1926. The Rotunda has been, and continues to be, a popular venue for a wide range of musical entertainment, from brass bands, pipe bands to string quartets. It is a particularly pleasant area during springtime, with the flowering of thousands of daffodils around it.

The Rotunda's columns were replaced in 2002 to bring the structure up to New Zealand Building Code earthquake standards. The new columns are exact replicas of the originals. The Rotunda has a Grade II Historic Places Trust listing.

Peacock Fountain



The Peacock Fountain was erected in the Gardens in 1910. Named for the Honourable John Peacock it was sited at the eastern end of the Archery Lawn. The fountain was dismantled in 1949, due to its deterioration and high maintenance costs.

By the 1990s there was renewed interest to re-establish the fountain in the Gardens. In 1996 the restoration of the fountain to its former glory had commenced at a new site at the northern end of the Armstrong Lawn and it was officially re-opened the following year. A rare example of this type of Edwardian design, the fountain was recommissioned by Mayor Vicki Buck in 1996.

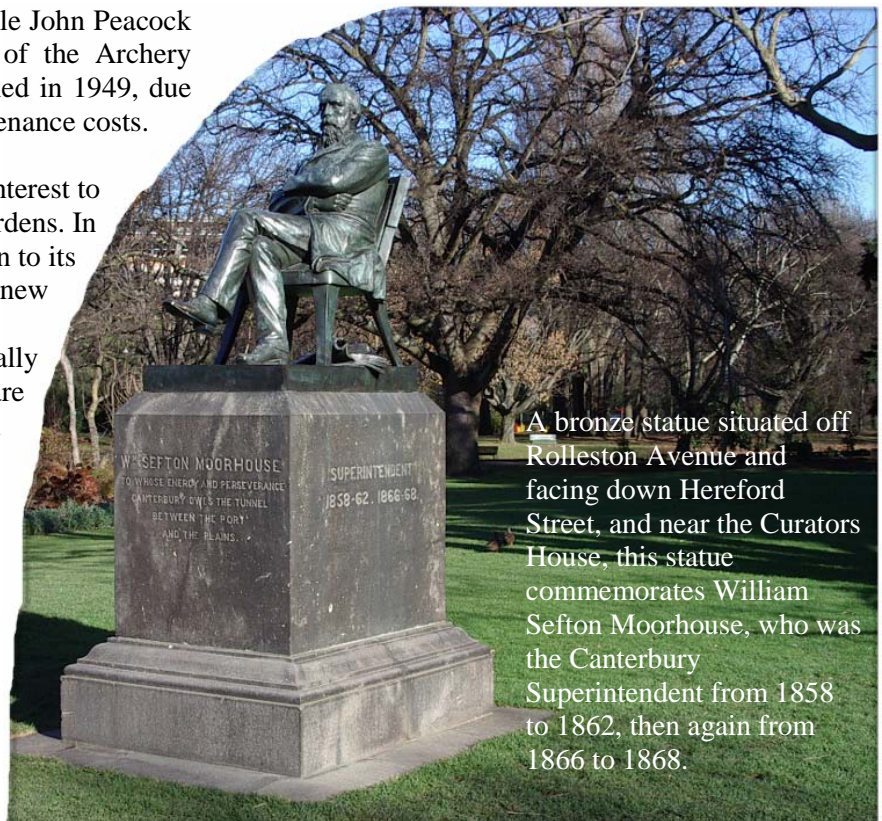
Further restoration of the fountain was undertaken early in 2007.

Fountain Regret



An abstract fountain located at the eastern end of the Archery Lawn. This was sculptured by Sam Mahon and designed to be interactive, with two moving sections being able to be activated by a hand lever at the side of the pool.

Moorhouse Statue



A bronze statue situated off Rolleston Avenue and facing down Hereford Street, and near the Curators House, this statue commemorates William Sefton Moorhouse, who was the Canterbury Superintendent from 1858 to 1862, then again from 1866 to 1868.

Pilgrims Well

A stone memorial enclosing a spring, with a black marble plaque and flanked by two stone seats. Located on the north bank of Avon River in North Hagley Park, across from the northern-most point of the Gardens. When European settlers arrived at Christchurch in 1850, many erected temporary shelters known as V-huts in the adjacent area of Hagley Park known for many years as Settlers Corner. A naturally occurring spring from which the settlers drew water emerges at this point on the river. The memorial commemorates the eightieth anniversary of the settlers' landing.

Te Puna Ora Spring ('The Spring of Life')



A single jet of water coming out of a rock and feeding into a small pond, surrounded by several stone carvings by Mr Riki Manuel and Mr Douglas Woods. Located west of the Central Rose Garden adjacent to the Water Garden.



Eveleyn Couzins Memorial

Situated at the eastern entrance to the Archery Lawn, this memorial, comprising semi-circular stone walls and pillars with a central gateway and bronze plaque, commemorates Eveleyn Couzins, Mayoress of Christchurch from 1941 to 1945.

Memorial seats

- 1) In the Herbaceous Border.
- 2) A seat constructed of Halswell Stone at the south-west corner of the Harper Lawn.
- 3) Harman's Grove Stone Seat, near the Woodlands Bridge on the north side of Harman's Grove.

Memorial sundials

- 1) An Oamaru Stone cairn with slate dial and bronze shadow marker in the Herbaceous Border.
- 2) In the centre of the Rose Garden, a tapered stone cairn with black marble table and bronze shadow marker set on an octagonal stepped stone base. Plaque made of bronze, erected in memory of Thomas Stevenson.



H. F. Herbert Memorial Shelter

This shelter, situated near the children’s playground, was built in 1945.

Paddling pool walled seating

The walled seating area near the paddling pools was built in 1972 to commemorate the golden jubilee of the Christchurch Rotary Club.

The Magnetic Observatory Workshop

A small, weather board building in the Botanic Gardens is a remnant of the Christchurch Magnetic Observatory, which was based on this site from 1901 to 1969. The Observatory, the fourth of this nature to operate in the Southern Hemisphere, was visited by many Antarctic expeditions and distinguished people, including Captain Robert F. Scott, Ernest Shackleton and Charles Richter.

This building has a concrete floor that contains a gravity benchmark as part of the New Zealand National Gravity Base Network.



Peace Bell

New Zealand’s World Peace Bell has been gifted to Christchurch by the World Peace Bell Association and was installed in a shelter west of the western end of the Archery Lawn in October 2006 as part of a new city Peace Walk.



The Bell is a replica of the original World Peace Bell gifted to the United Nations in 1954 and is one of only nineteen such bells around the world. It is made of coins and medals from 106 countries, including New Zealand, committed to the promotion of world peace.

Christchurch Meteorological Station

The Climatological Station, sited on the lawn southeast of the Gardens Café, was set up about 1991. Observations are recorded daily.

Hagley Fundamental Bench Mark

The Hagley Fundamental Bench Mark is a survey point to be used as an origin of level datum in the advent of a major earthquake in Christchurch.

There are only two fundamental bench marks in use in Christchurch. One is in the Gardens, set in the Observatory Lawn to the southwest of the Gardens Café; the other is on McCormacks Bay Road at the foot of Mount Pleasant.

It is critical that any development work in the vicinity not affect the bench mark in the Gardens in any way.

Public toilets

There are two public toilets in the Gardens. One is near the children's play area and the other is near the Museum.

Comment

There is scope for more bold sculptured pieces to terminate vistas and pathways and create focal points within large lawn areas. Most botanic gardens overseas make use of natural surroundings to promote statuary and outdoor art works (Given 1989). Any future building in the Gardens needs to be better integrated with existing Gardens buildings.

A number of steps need to be investigated to further improve growing conditions and reduce running costs in the glasshouses. There is also a need to ensure that all public buildings are accessible to the disabled.

15. Public use

The Gardens receives an estimated total of 1.2 million visits per year. This makes the Gardens one of the most popular visitor destinations in Christchurch and certainly the most popular passive recreation area.

Visitor survey

Most of the following statistical information is based on a 1985 survey of Gardens visitors conducted by B.G. Rooke. 161 people were surveyed. Percentages given are the proportion of this sample size that have responded for each category.

See Section 4 (Who uses the Gardens?) starting on Page 4 for a brief overview of the results of more recent (2004) surveys of Gardens' visitors.

Origin of visitors

Christchurch	63.4 %
South Island	9.9 %
North Island	4.3 %
Overseas	22.4 %

23.5 % of the above visitors said they would probably never be able to pay a return visit to the Gardens.

Generally, summer is the most popular time to visit the Gardens, although many people favour no particular time of year. Length of stay generally ranges from half an hour to three hours. Family groups and couples comprise 44 % of gardens visitors. Singles make up 22 % and schools comprise 15 %.

Length of visit

Passing through	6.8 %
Less than half an hour	9.3 %
Half an hour to one hour	34.8 %
Two to three hours	32.9 %
Full morning (usually 10.30am -2.30pm)	10.6 %
Full afternoon	3.1 %
Full day	2.5 %

Significantly, 70% of visitors are female. Of these, a large proportion are mothers visiting the Gardens with young children. Overall, visitors to the Gardens have attained higher education levels than the general population and a proportionally greater number belong to the middle to upper middle socio economic groups.

It is interesting to note that one of the reasons people visit the Gardens is because of an earlier

visit in a school party. It would appear that school visits have an important role in introducing children from many different socio-economic backgrounds to the Gardens.

Prompt to visit the Gardens

Previous visits	37.3 %
Other/miscellaneous	23.6 %
School	14.9 %
Advertising	6.8 %
Friends	6.8 %
Relatives	6.8 %
Community group	3.1 %
Club activity	0.6 %

Activities undertaken in the Gardens

The following table shows the relative order of importance of activities undertaken by the surveyed visitors to the Gardens. Respondents were asked to indicate which activity was important or of little/no importance to them.

	Important	Little/No Importance
For relaxation/rest	83.6 %	11.8 %
Viewing plant displays	78.5 %	21.6 %
Walking	72.7 %	27.9 %
Wildlife	59.7 %	40.2 %
Children's playground	48.1 %	51.9 %
Picnic	47.7 %	52.2 %
Exercise	44.6 %	55.4 %
Horticultural knowledge	42.2 %	57.9 %
Gardens Restaurant	28.9 %	71.0 %
Passing through	19.4 %	80.5 %

The most important activities in the Gardens are for relaxation/use of rest areas and viewing of plant displays.

Approximately half of the surveyed visitors to the Gardens considered the playground to be important. This possibly reflects the large number of family groups and women with young children who visit the Gardens.

The table below indicates the level of popularity, for the surveyed visitors, of features in the Gardens.

Facilities used in the Gardens

Water areas	82.0 %
Rose garden	79.5 %
Glasshouse	73.9 %
Native plant areas	64.6 %
Children's playground	54.7 %
Art gallery	50.3 %
Other	22.4 %

Number of visits each year

A significant number of people (58 %) visit the Gardens four or more times each year. 10.6 % visit the Gardens 21 or more times in a year, while 26 % only visit once. The 26 % is mostly made up of overseas tourists and North Islanders.

The large number of return visits (that is, 74 % make two or more visits) is a good indication of the Gardens popularity.

Approximately 78 % of the Christchurch residents who visit the Gardens travel less than eight kilometres to get there.

From these statistics, it can be surmised that the most important characteristic of the Gardens, from a recreation point of view, is that it provides a quiet, restful and pleasant place, that is based around botanical and horticultural interest. These are features that the Gardens already has. It is, therefore, important that circulation routes, signs and information are made as clear as possible to facilitate optimum visitor use of the Gardens.

Playground

The old playground, situated in an attractive sheltered microclimate, was an important part of the Gardens for 50% of visitors. Up to 5,000 people had been recorded using the playground area on a fine day. The playground was redesigned and rebuilt in 1992. It provides more opportunities for families and provides an incentive for people to visit the Gardens who otherwise might not do so.

Comment

The above survey indicates that for public recreation in the Gardens, relaxation and rest, plant displays and the playground rank highly for visitors, at least those that were surveyed. It is

quite likely that the attractive setting of the Gardens, with its abundant and diverse range of large mature trees and attractive displays, is a key reason why many people visit.

Proposed developments to enhance public recreation in the Gardens are, for example, to:

- Increase educational opportunities for the public.
- Allow for light entertainment in the paved area around the Gardens Café and in the children's playground area, such as during Easter and Christmas, and including activities like drama, music and folk dancing.
- Create more botanical feature areas.

16. Analysis and conclusion

Historical change

The Gardens as seen today has essentially resulted from the efforts of the various curators who applied different design concepts and ideas in their respective development and reorganisations of the place.

Outcomes of this include:

- Little significant updating of the Gardens circulation system, which has remained largely unmodified from the late 1940s to the present day.
- Continued frequent changes to the plant collections, with the resultant mixing of collection types. Overall, planting and tree growth has infilled most areas of the Gardens to create a predominantly woodland aspect, thus reducing areas where higher light requiring plants can grow well.

Design

The Gardens have never been designed as a single entity. This has led to numerous issues with the Gardens spatial and circulation network.

Future development should include consideration of how the existing spatial structure might be

integrated and extended. It should also include substantial improved user orientation in the areas of the Gardens that do not have clearly identifiable landscape features to aid this. This may require strategic location of new structures or features, careful disposition of new plantings, adjustment to the network of paths, or some combination of these. Adjustment to the path system will be the easiest of these to achieve in the short term and is, in any case, required due to its current deficiencies.

The Gardens also lack a high viewing point to permit the visitor to gain an overall impression and pick out the strategic features. Guide maps do not entirely address this, since many people have difficulty in interpreting maps. Identifiable landmarks are therefore essential and need to form a network that covers the whole site.

Plant collections

The Gardens contains one of the most important collections of exotic and indigenous plants in New Zealand. This is facilitated by a climate that is conducive to the growing of a wide range of plants from many areas of the world. Trees form the dominant component in the character of the Gardens. Many of the mature specimens are now over 110 years old. Unfortunately, years of ceremonial and general planting at various times in the Gardens history has led to considerable duplication of different tree species. Many potentially large growing trees are planted close together.

Plant collections have been changed a number of times in the history of the Gardens, with the end result that significant numbers of plants in collections have no botanical relationship with each other or with current collection aims. There is an urgent need to clearly designate the purpose for which each planted area of the Gardens is kept. The Gardens requires a clear planning framework in order that change may be managed in a staged and coherent fashion. This will ensure future plant collection integrity and protection from unplanned incremental change.

Importance to Christchurch

The Gardens is one of Christchurch's foremost attractions and, consequently, of significant

economic importance to the city. The upgrading of adjoining city facilities, such as the Worcester Street Boulevard and the Arts Centre, has made it necessary that the Gardens is developed and maintained to an equivalent standard. Its standing as one of Christchurch's primary visitor attractions depends upon it.

Importance to New Zealand

In spite of some past deficiencies, the Gardens is a significant garden in the Australasian region and a crucial New Zealand botanic garden in terms of the range of its exotic plant collections. Overseas botanic gardens have, however, developed a significant range of new functions and roles over the last forty five years in a search for modern relevance, which has not been undertaken to the same degree in Christchurch, except in recent years. There is a need to assess the merit of these new developments in the Christchurch and New Zealand context.

Future directions

In the past, the approach for the Gardens has tended to avoid a strong botanical and indigenous emphasis, and make amenity and exotic horticultural plants the main features of its displays. The institutional side of the Gardens has not developed as strong a scientific function as some overseas gardens, although, in more recent years, this area has received more attention. There is a need to make use of outside botanical expertise, wherever possible, to bolster existing in-house skills. Strict record keeping, modern technology and information sharing with other botanical gardens are essential to enable the Gardens to keep up to date with new ideas and methods in areas such as plant conservation. The future appears to lie in taking the best elements of the Gardens (that is, its amenity appeal and variety of plant collections) and incorporating new elements that reflect world wide environmental concern, increased emphasis on New Zealand's natural/cultural heritage and cultural links with other areas of the world.

The existing resources (that is, the plants, structures and staff) that make up the Gardens have been, and are, subject to many influences and changes. There are three major, interrelated issues facing the Gardens today:

1. How to best develop the Gardens to further promote the world of plants (with due regard to the botanical imperatives of the late 20th and early 21st Century).
2. How to enhance, and meet, Christchurch resident's expectations and use of the Gardens.
3. How to appropriately enhance the Gardens value as one of Christchurch's primary attractions that is of major economic importance to Christchurch.

Part IV of this management plan serves to indicate how these issues, and others, can be addressed through the implementation of a set of actions.



PART III
MANAGEMENT GOALS, OBJECTIVES AND
POLICIES

