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Tree Collections of Auckland: Biodiversity and Management

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Presented by Penelope Frances Cliffin

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Abstract

Recent developments in New Zealand environmental legislation and government policies are based on an economic world-view where landscape is portrayed as a 'natural' resource. This paradigm largely ignores the human-made urban landscape where the highest proportion of population live. Our national legislation pays little attention to urban vegetation in general and exotic tree collections in particular. Research therefore has a vital role in highlighting the character and values of urban vegetation, and in analysing the current models used to manage its continued existence. This study examines the importance of charting and managing biodiversity and focuses on managed amenity and scientific tree collections in the Auckland region.

This regional study seeks to characterise the biodiversity of tree collections in Auckland, and describe how landscape management can best contribute to their biological and human-use values. The literature review establishes the importance and values of trees and urban vegetation as critical to the fabric of human lifestyles and the ecology of the city. It then reviews the basis for the preservation of biodiversity in managed plant collections. Management principles and systems are reviewed along with the legislative context in Auckland. No mandate is established for exotic plant collection management under the Resource Management Act, 1991 (RMA1991). Management of this resource is found to lack the focus and funding from which natural and rural biodiversity benefit under the RMA and other national legislation.

A biodiversity survey of thirty-eight collections of trees characterises the biodiversity in the collections, and a survey of twelve tree collection managers provides data about the goals, practices and tools used in the management of those collections.

Results reveal the diverse and unique flora of Auckland tree collections, and establish a baseline for comparison over time. The regional mix of native and exotic species found in Auckland collections is compared with other national

plant surveys, and demonstrates differences consistent with regional climatic character and a differing research focus. The largest collection of trees and the most specialist genera collections were found at the Auckland Regional Botanic Garden, while the University of Auckland provides the most extensive range of scientific plant-collection facilities. There is evidence of sequential open space acquisition for tree collections in the Auckland region. Comparison of best management practices put forward in current literature with current practices of collection managers in Auckland reveals some significant issues. There is little evidence found to suggest strategic plant acquisition goal setting. It is also of concern that only half the collection managers used computerised plant record systems such as inventories and specialised database systems. Only one third of the managers had management plans, and therefore documented collection goals. There was no significant difference in the use of best management practices between the private and publicly owned collections. Well-managed collections are characterised by high or specialist tree species diversity, clear strategic goal setting and management planning, computerised plant record systems, adequate resources, appropriate staffing and the use of monitoring tools.

Discussion of these research results leads to three recommendations. Firstly, the management of specific sites is discussed in light of a proposed model for plant collection management. Secondly, management policy for the regional Urban Forest is recommended. Lastly, the finding that Auckland's exotic tree collections are a valuable resource worthy of protection, currently having little status under the law, leads to the recommendation for the empowering of a national body (central agency) with a mandate for the national coordination of botanic gardens and plant collections.

This research therefore charts aspects of Auckland's urban biodiversity with reference to current legislation and management models. Its findings and recommendations are of importance to reviewers of national environmental legislation, regional policymakers and tree collection managers.

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Chapter 1: Introduction

1.0 An Overview of Chapter 1

This research project seeks to investigate the biodiversity of managed amenity and scientific tree collections in the Auckland region, and to examine their botanical significance and the adequacy of the management systems applied to them.

Chapter One is a review of literature relevant to this study. This begins with establishing the value of trees in the urban environment, then introduces the concept of biodiversity and how plant collections can be used to conserve biodiversity. Then the specific Auckland research context is described, highlighting the need for management of landscape resources. Next is a review of current management theory and external influences on management systems, such as the legislative environment. The chapter provides the reader with definitions of terms used, establishes existing background knowledge, and describes current theoretical frameworks used to examine the way plant collections and landscape management are understood. Lastly, this chapter poses the specific research question to be addressed by this project. **Appendix 1** provides a contact list for all personal communication referenced in this thesis.

1.1 The Human Use Values of Trees

1.1.0 Introduction

According to Nadel *et al.* (1977, p. 85):

trees reach up and link man with the sky. In a city they transcend the noise, confusion and disorder. Silently, they provide a resting place and refuge from the chaos of urban life. In the quiet early morning hours of dawn, in the rush of late afternoon business, city trees proudly stand protecting us from the loss of our humanity

Trees embody many different values, some inherent and some ascribed to them by humans, termed human-use values (Given, 1994; Loxton, 1991; O'Neill, 1993; Phillips, 1993; Stone, 1996).

1.1.1 Symbolic Values

From ancient times trees were given symbolic status in human art, mythology and literature. This can be seen in the role of trees in the imagery of major Eastern and Western religions, such as the tree of life and knowledge in Judaism, 'sacred groves' in ancient Greece and Italy set aside as temples, and tree worship of *Ficus religiosa* in Pakistan (Bell, 1997; Bernatzky, 1978; Nadel *et al.*, 1977; Westoff, 1983). Many nations select plants as national symbols, for example the New Zealand silver-fern emblem. The fern was used as an example of the symbolic value of native fauna by then Prime Minister Jenny Shipley in her endorsement of the Draft Biodiversity Strategy in 1998 (Department of Conservation and Ministry for the Environment, 1998).

As well as these positive images of vegetation there are also examples of negative imagery. Forests represent the primeval or mythical world, and are one of the archetypal landscapes of the Western world, which humans have gradually sought to convert into the cultural landscape (Bell, 1997; Schama, 1995). Forests have also been seen as a place of hiding for enemies and evil spirits and as somewhere posing the threat of becoming lost (Dwyer *et al.*, 1991; Westhoff, 1983). A range of these different views of vegetation can be expected to have a place in the psyche of even the most modern city dweller, and to influence his or her attitude to urban trees (Arnold, 1993; Schama, 1995).

1.1.2 Psychological and Physiological Benefits

Another benefit of vegetation which is well supported in the literature is the positive physiological and psychological benefit of nearby nature, with trees playing a major role (Honeyman, 1992; Kaplan, 1992; Miller, 1988; Phillips, 1993; Relf, 1992; Schroeder, 1990; Ulrich, 1983; Ulrich & Parsons, 1992).

Interaction with nature has a number of direct positive physiological effects on the human body. Research has centred on people suffering from symptoms of stress, such as high blood pressure, muscle tension and increased heart rate. Research reviewed by Ulrich and Parsons (1992) gives evidence of stress recovery indicators such as reduction in blood pressure, muscle tension and normalised heart rate after exposure to natural environments. Studies on brain

waves by Ulrich (1981) indicate that nature scenes elicit a wakeful, relaxed state. Particularly interesting is a study by Heerwagen (1990) on heart rate comparisons of people visiting a dentist. A nature scene mural in the waiting room was shown to reduce stress symptoms for the visitor.

The positive effects of gardening projects on interpersonal and community wellbeing in American housing estates are documented by Lewis (1992). Neuberber (1992) reports on benefits of horticultural therapy for sufferers of mental illness in Germany. Browne (1992) reports her research into how important 'landscaped grounds' are to potential rest home residents. Ninety nine percent of respondents considered this either 'essential' or 'important' in their preference criteria for selecting a rest home. Some of the benefits reported were aesthetic enjoyment, motivation for physical exercise, social interaction and opportunity for self-expression in the gardens. McDonald and Bruce (1992) review research showing that in institutions for geriatric and handicapped people, human interaction with plants heightens self-esteem, increases purposeful behaviour, creativity and self-expression, and helps in adjustment to new environments (Hill & Relf, 1982; Inman & Duffus, 1984; Isaacs, 1986; Watkins, 1982). Providing views to nature for prison inmates is known to reduce admissions to prison hospitals (Moore, 1982; West, 1985).

Models such as Ulrich's Information Processing Model (1981; 1986) enable preference predictions to be made about a particular landscape scene. Trees are a very clear content preference in landscape scenes whether it be in regional work, such as done by Fabos & McGregor (1979) in Australia, or on localised urban scenes research by Kaplan (1985). Urban dwellers value natural features such as trees, grass and water (Schroeder, 1982). Urban ratepayers value tree programs highly compared with other municipal services in Detroit, e.g. tree lined streets were very popular (Getz *et al.*, 1982) with residents. Trees' aesthetic qualities, provision of shade and effect of increasing property values were considered their most important contributions to urban environments in that study. In a study by Schroeder (1990) trees rank highly in preference factors for parks, and Hull (1992) found that thirty percent of residents identified the urban forest as the most significant urban feature that was

damaged in a hurricane in Charleston, and listed a range of psychological benefits for having trees in the city. A New Zealand study (Kilvington & Wilkinson, 1999) on community attitudes to urban vegetation in Christchurch, found that psychological and physiological benefits, such as stress relief and a sense of peace, were the most commonly identified values of urban vegetation by focus group participants. From the sample of studies reviewed above, it is clear that psychological and physiological research has demonstrated the positive effect of plants on people, and has led to better understanding of human preferences for landscape and vegetation.

1.1.3 Recreation Values

Most tree collections are sited within parks and gardens which also provide space and facilities for one or more forms of active or passive leisure or recreational pursuits. This defines them as sites with recreational value (Cobham, 1990). Recreation is a recognised role of botanic gardens (Given, 1984), and is an important reason why many people visit botanic gardens (ARC, 2000). Clark and Stankey (1979) propose the Recreation Opportunity Spectrum (ROS) which seeks to explain a continuum of recreational experiences, ranging from primitive or wilderness experiences where the environment is pristine, and little management is required, through to sophisticated cultural experiences where the site is likely to be highly designed, developed and managed. This spectrum represents the range of experiences the recreational user has to choose from, and also a relationship between the biophysical site, management and the visitor's choice. This continuum has similarities to the landscape spectrum proposed by MacKay (1996), in both content of the continuum and the level of management input ascribed for the continuance of different types of recreation landscapes. The biophysical attributes of the site, the services on the site and the social setting, all influence the visitor's choice to come to the site (Jubenville and Twight, 1993), along with factors such as the distance and ease of transport to the site (Jubenville and Twight, 1993; Miles & Seabrook, 1977).

Biophysical site qualities such as scenic quality, favourable climate and opportunities for participatory activities are factors which attract visitors

(Miles & Seabrook, 1977). Recreational use often conflicts with biological resource values (Lemons, 1987), and so must be considered in landscape management systems. This is where resource monitoring reviewed in Section 1.6.6, such as resource carrying capacity and limits of acceptable change are useful to gather evidence of recreational use effects on the environment.

Recreation values can clearly be seen as part of the human use being managed in a tree collection. Therefore the conflict between human use and the biological resources must be understood and actively managed. The recreational impacts of visitors to a collection need to be accounted for in any management model considered in this research.

1.1.4 Historic Values

Gardens are increasingly being recognised as an important reflection of cultural and social history (Goult, 1993). Garden design traditions developed within distinct geographic and cultural situations (Barnett, 1993; Bradbury, 1995; Goult, 1993). Individual trees have been planted throughout history to commemorate special visits, events or people (Heritage Victoria, 1999). Certain tree species were introduced at particular times and these dates can help identify historical periods (Banks, 1988). Knowledge of gardens in general, and trees as major structural elements, may, through interpretation, give us access to the knowledge of history, a depth of understanding of the contemporary cultural landscape and how landscapes reflect cultural values (Boisset, 1980; De Lambert, 1986; Goult, 1993).

Protection and management of historic cultural landscapes is evident in countries with many centuries of cultural history, such as in Britain, where historic gardens receive protection and funding through the National Trust. The historical significance of landscapes and trees is less well conceptualised and valued in New Zealand. This lack of recognition is apparent in the Historic Places Act (1993), where there is no protection provided for gardens and trees except in association with a building. Many Australian states are similar to New Zealand, but the State of Victoria provides protection for different kinds of landscapes, including gardens and individual trees e.g. the 'Federal Oak' in

Melbourne (Heritage Victoria, 1999). Tree collection heritage values are therefore unlikely to be managed effectively under the Historic Places Trust, unless an historic building is associated with the site.

1.1.5 Economic Values

Economic values of trees include direct monetary values such as those gained from plant products and crops, such as timber, paper, food, medicines, eco-tourism profits and contributions to real estate values (Barbier *et al.*, 1994; Groombridge, 1992; McNeely, 1988; Miller, 1988; Phillips, 1993).

Trees also have indirect values of, such as maintaining the options for future generations to directly utilise plant species for purposes as yet not realised, as described by Given (1994). The non-saleable products of ecosystem functioning include the release of oxygen, absorption of carbon and pollutants such as sulphur dioxide, cooling and shading effects, run-off and erosion control (Bradley, 1999). These indirect benefits are sometimes termed ecosystem services, and are (generally unacknowledged) subsidies to economies (Costanza *et al.*, 1997; Folke, 1992). The New Zealand Biodiversity Strategy (Department of Conservation and Ministry for the Environment, 2000, p. 3) states:

that New Zealand bases much of its economy on the use of biological resources and benefits from the services of healthy ecosystems.

In the current Western economic paradigm of 'user-pays' arguments that seek to demonstrate economic value or utility of natural resources, are perhaps seen as more persuasive than moral or aesthetic arguments (Groombridge, 1992). Economic techniques are essential tools in valuing natural resources (Costanza & Daly, 1992; Folke and Kaberger, 1992; Mykletun, 1990; Wagner *et al.*, 1998). Methods which seek to calculate economic values to natural resources include opportunity or alternative cost approaches, cost benefit analysis (Hampicke, 1994; Moll, 1995), contingent valuation, revealed preference surveys and travel cost analysis (Jakobsson & Dragun, 1996).

One example of an alternative cost method is the calculation of energy

equivalents for urban ecosystems services such as reduction in storm water run-off, temperature reduction from tree canopies, and improvements in air quality. These energy equivalents can be compared to the cost of alternative services such as extending storm water reticulation systems and air conditioning or filtering costs and are therefore useful complimentary bio-physical estimates to a monetary analysis (Bradley, 1995; Folke, 1992).

A particularly difficult issue in economic valuation is the importance of acknowledging intrinsic or existence value of natural resources. Contingent valuation methods ask users about their willingness to pay for recreation opportunities or to accept compensation for giving up the right to that recreation or use. This method is gaining support, with 1600 documented works reported, may provide a more holistic approach to economic valuation (Jakobsson & Dragun, 1996).

There are several different valuation models in use for placing economic value on individual trees, such as used by the Royal New Zealand Institute of Horticulture (Flook, 1996), the Arboricultural Association (1990) in Britain, the Australian Institute of Horticulture (1997), the Council of Tree and Landscape Appraisers with the International Society of Arboriculture (1995) in the USA. These systems all award points on the basis of qualitative criteria and then award a dollar value rate per point scored. In student comparative studies at Waikato Polytechnic, valuation systems have been found to give very different values for the same tree (Collett, 1997). Each system of valuation gave a relative measure of values between trees evaluated by that system, but the dollar values generated were inconsistent.

Auckland City council prepares evaluations of trees scheduled in its district plan (Auckland City, 1999a), which give numerical scores without converting the score to a dollar value (Auckland City arborist Bryan Gould, personal communications, February 2000). Monetary values can be calculated for species with commodity values and ecosystem function values, but there is still no reliable evaluation system available to measure additional amenity and social values in monetary terms (Dobson, 1998).

1.1.6 Aesthetic and Design Values

Trees add beauty to our environment through graceful shape, foliage, fragrance, flowers and fruit as well as their ability to define and articulate space, and to enhance or control views (Phillips, 1993; Thomas, 1983). Vegetation is the landscape architect's unique material palette, making landscape design distinct from other design professions. Trees are the largest structural plant elements in that palette. They are long-lived and provide the main framework for planting design. Their selection and placement must therefore be designed following principles of landscape design such as balance, proportion, scale and unity. Size and form must be considered to avoid long-term problems such as view obstruction. Visual control includes being able to provide privacy; enframe, create focal points, emphasise and screen views and buildings; and therefore control movement of viewers around a site (Booth & Hiss, 1991; Carpenter & Walker, 1990; Clouston, 1990; Grey & Deneke, 1978; Hackett, 1979; Robinson, 1992).

Choice of plant material will depend on a combination of the following four criteria. Firstly the functional goals for the site and the three dimensional effect required for the particular use. Secondly the physical constraints of the site must be considered e.g. soil type, climate, management practices. Next, all the plants selected for a design should contribute to the overall theme or effect to be created. This must be done in sympathy with the architecture, site and location (Barnett, 1993). Using trees from local and nearby flora contributes to establishing a local theme or identity, e.g. the iconic pohutukawa used to symbolise Auckland's coastal identity (Auckland City, 1999b).

Lastly, the aesthetic goals of the designer are brought to bear. The form or overall shape and size of the tree, colour (from its leaves, bark, seasonal flowers and fruit) and texture (surface characteristics of the tree, determined mainly by leaf size and arrangement) are each considered in relation to the whole (Booth, 1983; Robinson, 1992).

The individual (specimen) appeal of trees is seen by some, as a handicap to designers using trees effectively at an urban scale. Arnold (1993, p. 1) suggests that:

the most persistent problem confronting every designer who works with trees is their seductive appeal. The remarkable aesthetic power of trees distracts artists so much that their potential for building dense organic compositions has been replaced by an over-refined, precious reverence for individual trees

Although Arnold's comment may be critiqued as limiting the design use of trees, he does express the different approach required when using trees at an urban or city scale, compared with a residential or garden scale. Reverence for the individual or specimen value of trees is important for designers to consider. At the city scale however, the bold framework approach he advocates is more effective in providing a link between open space and providing a sense of hierarchy of transport corridors or carriageways. Signature tree species of differing scale may convey this hierarchy. Auckland City (2000) describes eight street typologies within its boundaries, for which it selects different types of street tree to suit different functions e.g. heritage areas have street planting which allow the buildings to be clearly viewed, pedestrian areas have small scale trees to keep with the intimate human scale. Commercial areas have large scale trees to balance the scale of the buildings. The anomaly here is that the street design cross-section does not allow enough width to give large trees enough space to grow properly. Queen Street is an example of this where the *Platanus orientalis* are etiolated due to lack of light and damaged due to physical contact with the shop canopies. A new streetscape design is being proposed for Queen Street in conjunction with plans for light rail transport system, which provides unimpeded tree spaces (Cumming, 2000).

Arnold (1993) advocates using large trees in single species grid formations in urban areas. Large trees give an appropriate scale to large buildings in the city. Using a large number of the same species of tree provides linking or unifying

elements amongst mixed architecture, and grids of trees add to that unity. Grids or avenues also create a sense of movement and linkage of open spaces such as parks and plazas. Fredrick Law Olmsted's park systems recognised the increased visibility and accessibility afforded by linkage of urban open space (Smith & Hellmund, 1993). The wide, treed boulevard was the design form he advocated to achieve this linkage, along with walking trails and greenbelts, together encouraging use by pedestrians (Bella, 1987). The public use of the tree collections surveyed would therefore be enhanced by creating linkages such as advocated by Olmsted (Smith & Hellmund, 1993).

1.1.7 Engineering Values

The biological values and 'ecological services' which vegetation provides in natural areas are often utilised by engineers, architects and landscape designers in urban areas. Additional engineering functions of vegetation in general and trees in particular are well documented in landscape architectural texts from authors such as Carpenter & Walker (1990), Jackman (1986), Motloch (1991) and Robinette (1972).

Erosion control is afforded both by canopy cover interrupting the impact of the rain on soil, and by the reinforcing nature of plant root systems in the soil structure. Plants also absorb large quantities of rainwater, contributing to the balance of the hydrological cycle. Noise abatement by plant material is not as efficient as more solid barriers to deflect sound waves, but visual screening using plants does give psychological relief from the effect of noise pollution, as well as effective control of glare e.g. for houses along motorway margins (Robinette, 1972). Climatic control may be achieved by the use of tree wind breaks, designed to deflect and/or filter strong or cold winds, or to channel cooling summer winds to lower high temperatures. Deciduous plants provide effective shade from summer sun, while allowing winter light to penetrate into outdoor spaces and indoor rooms. Air filtering and oxygen production values of trees are also available to urban designers to contribute to the air quality benefits of the Urban Forest (Beckett *et al.*, 2000).

1.1.8 Amenity Values

Somewhere in-between aesthetic, social and recreational values is the ill-defined or rather broad term 'amenity value'. Cobham (1990) lists a range of values of land used for amenity purposes which include leisure and recreation, visual beauty, historic and cultural interest, habitat, social and economic values. The Resource Management Act (1991) also gives a broad definition, 'natural and physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes'.

For the purposes of this research the term amenity value will be considered a general term encompassing a wide range of landscape values. It provides a useful term to describe the values of the surveyed tree collections sited in parks.

Commentary

This section has clearly shown that trees influence people, especially in the city (Arnold, 1993; Honeyman, 1992; Kaplan, 1992; Miller, 1988; Phillips, 1993; Relf, 1992; Schroeder, 1990; Ulrich, 1983; Ulrich & Parsons, 1992). Urban vegetation is a critical component of the fabric of urban lifestyles, and is understood as many things, including open space, scientific collection, ecological service, historic artifact or economic asset. People can also be seen to have a fundamental influence on the landscape as they constantly design, use and manipulate their environment (Laurie, 1986; Meinig, 1979; Relf, 1992). There is a large body of research which seeks to provide models for landscape assessment of both human-use and biological values (Daniel & Vining, 1983; Fabos & McGregor, 1979). In the next section on the biological values of trees, biodiversity and its conservation are considered, with a focus on scientific plant collections and botanic gardens as tools to conserve biodiversity as key, and well-described collection types in the biodiversity literature reviewed. Plant collection research in New Zealand is then reviewed to establish the context in which this study sits.

1.2 The Biological Values of Trees

Plants are an essential part of the ecological systems and biological cycles which constitute the complex web of life on Earth (Chapman & Reiss, 1992; Folke, 1992; McNeely, 1988; White *et al.*, 1984). As plants take in carbon dioxide and water to photosynthesise their own food, they release oxygen as a by-product and accumulate carbohydrates. Plants therefore provide oxygen and food for the animal kingdom (Chapman and Reiss, 1992). Forests play a crucial role both globally, in climatic regulation, (Given, 1994) and locally in terms of temperature, humidity, wind control and providing habitat for animals (Bradshaw *et al.*, 1995). They also provide the carbon sink which regulates the levels of carbon dioxide and oxygen in the earth's atmosphere (Chapman and Reiss, 1992; Dobson, 1998). These biological roles are sometimes termed 'ecosystem services' (Costanza & Daly, 1992, p. 37; Costanza *et al.*, 1997, p. 253).

Deforestation of land for agriculture and urban development reduces the buffering capacity of natural ecosystems and cycles and therefore threatens the stability of the Earth's climate (Given, 1994; Groombridge, 1992). Global warming and ozone depletion are examples of human effects on environmental stability. Limiting deforestation and vegetation clearance, and planting more trees is considered a key strategy in attempts to regain environmental equilibrium (Dobson, 1998; Given, 1994). Plants therefore maintain the biosphere as a functioning system and provide the material basis for human life (Folke, 1992; Groombridge, 1992; McNeely, 1988).

1.2.1 The Concept of Biodiversity

Biodiversity is a contracted form of the term 'biological diversity', and has been identified as a key indicator of biological quality (DOC & MOE, 2000; RMA, 1991 section 2).

Biodiversity can be understood at three different levels: The first is in terms of genetic variability within a species. A plant taxonomist or systematist would usually describe biodiversity in terms of the number of species in a monophyletic taxon i.e. genetic variability (Eldredge, 1992). The second is in

terms of the number of species in any given area. An ecologist would be interested in the number of species and the relationship between species in a particular ecosystem. A taxonomic plant collection or botanic garden curator may view biodiversity in terms of the number of species and cultivars within a plant collection, but must also consider genetic diversity within the collection. All three levels of diversity are important concepts in conserving overall biological quality (Groombridge, 1992).

Biodiversity is important to the health of the environmental setting, and is a required consideration for management of State lands in New Zealand (Department of Conservation and Ministry for the Environment, 2000). Human actions on the landscape in industry, horticulture, agriculture, housing and forestry all tend to reduce species and ecosystem biodiversity. Worldwide research clearly indicates that plant species biodiversity is declining at an alarming rate (Given, 1994; Groombridge, 1992). Native forests have been cleared all over the world in the wake of Western colonisation, and present day tropical forests are still being cleared at a rapid rate (Given, 1984). Modification or destruction of natural plant habitats is the main cause of plant biodiversity decline, followed by direct collection or harvesting (Groombridge, 1992). Plant collections are one way of conserving plants under threat. New Zealand has been suggested as a potential botanical Noah's Ark, for conserving threatened temperate and subtropical floras (Given 1986/1987).

New Zealand relies heavily on exotic plants and animals for its world trade (Hammett, 2000). Plant conservation strategies, including plant collections, seek to ensure the maintenance of plant biodiversity for biological and ecological reasons as well as human uses such as food, fibre, timber, fuel and medicinal. Other values of vegetation such as aesthetic and the future option values of plants, are covered in Section 1.1. Preservation of diversity of garden plants is reliant on the plantsmanship and horticultural knowledge and skills of home gardeners, landscape planting designers, plant collection managers the nursery industry (Given 1986/1987; Hammett, 2000). Design trends to have fewer types of plants in gardens to give a minimalist or modernist look, encourage nurseries to stock a more limited range of plants (Bradbury, 1995). Keith

Hammett (2000) describes this as a trend towards "more and more of less and less". This trend poses a threat to the continuing availability of a wide range of garden plants. An analysis of availability of the trees found in this study will be undertaken to assess current species availability. Trade availability becomes important to tree collection managers when replanting programmes are undertaken, especially when historic values of the collection dictate direct replacement of existing species.

1.2.2 Plant Conservation Management

Conservation of species biodiversity is concerned with maintaining viable populations of species. For short-lived plant species in the wild, population viability is a serious issue, due to the necessity for frequent seed production cycles for the continuance of the species. Fifty plants is considered a minimum number for a viable breeding population (Given, 1986/1987). For the amenity tree species considered in this study, population viability is not such a serious issue, as the trees are long-lived, and vegetative propagation is possible. However this type of reproduction does lead to a decline in genetic variability, and therefore to vulnerability problems inherent in monocultures, such as susceptibility to pests and diseases, may become a threat (Given, 1986/1987). In order to maintain biodiversity, two approaches to maintaining viable populations of species are well established:

In situ conservation is used to conserve viable plant species populations in their natural ecosystem environments. The habitats must often be protected in order to ensure their continued existence. New Zealand's National Parks and Protected Natural Areas scheme seek to preserve a range of threatened habitat types, so as to conserve our plants species *in situ*.

In contrast, *ex situ* conservation maintains plant species in cultivation. Botanic gardens and plant collections form a major part of world's *ex situ* plant conservation efforts (Given, 1986/1987; Groombridge, 1992). Conservation of rare and endangered plants, the habitats of which are already seriously depleted or under threat, are often managed from an *ex situ* approach. New Zealand is considered an ideal location for *ex situ* conservation of rare and

endangered plants around the world, due to its small population, isolation and freedom from major pollution (Given, 1986/1987). Other *ex situ* plant conservation approaches include field gene banks and seed banks. Field gene banks are areas of land set aside in which collections of viable plants are assembled, at a lower cost than, and without the other functions of a botanic garden. Field banks are useful for long-lived perennial species such as some tree and woody shrub species, with low maintenance requirements and slow seed production rates. Seeds are collected regularly for propagation of the species (Groombridge, 1992). Seed banks are a space-efficient way of storing genetic material for the future. Not all seeds are suitable for storing in this way, but there are many species which do have seed suitable for long-term storage. The Auckland Regional Botanic Garden is planning to start a seed bank in the near future (Auckland Regional Council, 2001).

Horticulture provides useful tools for *ex situ* plant conservation. An example of this is the use of vegetative propagation techniques e.g. hardwood cuttings, used to propagate shrubby tororaro (*Muehlenbeckia astonii*) by the Hutt City Council and the Department of Conservation in Wellington. Plantings of *Muehlenbeckia astonii* were established in traffic islands and street verges in the Lower Hutt town centre for conservation purposes (De Lange & Silberry, 1993). Philip Simpson and Peter de Lange (1993) have documented a history of plants saved by people bringing them into their gardens, both in New Zealand and internationally. Plants conserved in this way may then be used as propagation material to be taken back into the natural environment, once the habitat has been protected or restored (Lucas, 1978). Identification of key sites and at-risk species has long been recognised as a crucial conservation role for botanic gardens to be involved with internationally (Lucas, 1978). Careful collection, identification, recording of species data and plant management practices, such as weed control are essential in this type of *ex situ* conservation, to ensure population maintainance (Given, 1994; Hawksworth, 1995).

Plant collections and botanic gardens are key tools in plant conservation, and are discussed in the next section.

1.3 Plant Collections

1.3.0 Introduction

In Britain a scientific 'plant collection' is defined as a group of plants representative of a genus group or sub genus group (Lowe, 1989). Applications for registration with the National Council for the Conservation of Plants and Gardens register are required to have 75% of the total possibilities listed in the RHS British Plant Finder (RHS, 2001-2002), and must aim for full comprehensive representation over time (<http://www.nccpg.org.uk>, accessed 16/11/01).

In this research project, the term 'plant collection' is initially used more broadly, to mean a group of trees on a particular site, for which there exists some record of the species present. This may be in the memory or manual notes of the owner/manager, or a more formal survey list or database of the trees. This usage of the term 'collection' will be brought into focus in the data analysis in Chapter 3, where the collections will be evaluated in terms of the narrower British definition.

A register of New Zealand plant collections was started by members of the Royal New Zealand Institute of Horticulture, but the last update on the register was 1993 (Hammett, 1993). Marion MacKay has researched and published results of two national surveys of tree collections (1990, 1993, 1995). In 2000 Massey University and Eastwoodhill Arboretum convened a workshop on the management of plant collections (MacKay, 2000). This included a summary of her research to date on the 'national' tree collection, findings of Jamil (1998) on rare and endangered trees and preliminary results of this study. Michael Oates' broad interest in trees, botanic garden and native plant collection management is reflected in two of his many publications (1993, 2000). Burstall and Sale's book (1984) recording their analysis of many of New Zealand's 'Great Trees' provides specialised lists of trees of significant individual specimen value from each region. Other groups involved in plant collection research are listed in the following section. Of particular note is the work of the Botanical Society of New Zealand, and in particular many unpublished tree surveys undertaken by Mike Wilcox and Ewen Cameron. Despite the efforts of these groups and individuals plant collection research remains piecemeal and documentation incomplete (Given 1986, 1987).

Botanic gardens and arboreta are the most specialised type of plant collections, described in more detail in the next section. Many visitors go to botanic gardens and parks because of landscape beauty, visual appeal and recreation values as well as to see the scientific plant collections. Historic interest, plant novelty, rarity, economic value and design trends may also attract visitor interest. A plant collection manager is therefore well advised to consider these values as well as the scientific biodiversity values when setting goals for a particular plant collection, as it is often visitor numbers which are the basis for budget funding allocation (Auckland Regional Council, 1998).

1.3.1 Botanic Gardens

A botanic garden is described as a scientific and educational institution with a collection of plants arranged according to some system of botanical classification (Warner, 1975). Bailey & Bailey (1977) give emphasis to the components making up the botanic garden in their definition e.g. a living collection of plants with libraries, herbaria, laboratories and museums. Byrd (1989) emphasises labelling and recording each plant's history and origin as important for the collection.

The primary component of any botanic garden is its plant collection (Given, 1994; Oates, 1992). Given (1994) lists nine categories of botanic gardens and arboreta used in the United States, and compares their constituent elements, as shown in **Table 1.1**. Botanic libraries, plant record systems and propagation nurseries are other elements which may make up a botanic garden.

Table 1.1 Types of Botanic Gardens and Arboreta (Adapted from Given, 1994)

	Plants	Herbarium	Labs	Open to public
State botanic garden	Y*	Y	Y	Y
Municipal or civic	Y	S	S	Y
University	Y	Y	Y	Y
Private	Y	Y	Y	Y
Private, without state support	Y	N	N	S
Government arboretum	Y	Y	Y	Y
University arboretum	Y	Y	Y	Y
Private arboretum	Y	S	S	S
Botanical-zoological gardens parks	Y	N	N	Y

*Y = Yes N=No S=Sometimes

For centuries, botanic gardens have been major centres for the collection of the world's plant resources and the study of plant diversity. This has provided a mechanism for the introduction and assessment of economically valuable plants for horticulture, agriculture and forestry around the world, as well as conserving amenity plants (Eloff, 1985; Given, 1994; Heywood, 1987). The earliest recorded botanic garden was established at Padua University in northern Italy in the sixteenth century.

Authors reviewing botanic garden collection and design trends describe the early idea of collecting medicinal plants and then the collection of plants from around the world and organising them according to a taxonomic classification system (Heywood, 1987; MacKay, 1996). More recently botanic gardens have organised plants in collections based on geographic origin or in terms of their use in various garden style categories. The role of botanic gardens in the *ex-situ* conservation of threatened native species has also been recognised as of global importance for future option uses of these plants (Groombridge, 1992). Plant collections contribute to the worldwide maintenance of international germplasm (Eloff, 1985). Modern botanic gardens are multi-functional in their roles, including education, recreation, and research for botanical science, commercial and amenity horticulture (Bramwell *et al.*, 1987; Given, 1986/1987; Oates, 1993). Internationally, botanic gardens of today are linked by organisations such as the International Council for Conservation of Nature (ICUN) with its World Conservation Strategy (Bramwell, 1987; Lucas, 1978), and the World Conservation Monitoring Centre (WCMC), set up by the ICUN, and operating at Kew Gardens (Groombridge, 1992).

New Zealand Botanic Gardens

New Zealand has a series of botanic gardens funded by territorial authorities, with no national botanic garden (Oates, 1992). Given (1986/1987) identified the lack of clearly a defined scientific research role for New Zealand's botanic gardens, and the need for recognition of nationally significant plant collections, a botanic garden network and a national botanic garden. The

International Union for Conservation of Nature and Natural Resources (IUCN) Botanic Gardens Strategy recommends that botanic gardens adopt more professional standards of management, more coherent plant accessions policies, and improve plant records documentation systems (Bramwell *et al.*, 1987).

The cultural and ethnobotanic use of plants is receiving interest and attention at botanic gardens around the world (Oates, 2000). A national ethnobotanic garden was proposed for Auckland at a workshop held in Christchurch in 1988 (DSIR, 1988). This was to be a partnership between the Department of Scientific and Industrial Research and Maori iwi groups. Plans for this collection were never implemented. Otari Native Plant Museum provide some ethnobotanic education at their collection and plan to continue to work with iwi to identify issues and possible collections focussing on ethnobotanical/cultural/economic themes (Oates, 2000; Wellington City Council, 1996). A national ethnobotanic collection is still lacking, and should therefore be a strategic national goal for plant collection management in New Zealand.

Many organisations contribute to this documentation and profiling of exotic flora, as listed in the next section.

1.3.2 Plant Collection Organisations and Resources

International Union for Conservation of Nature and Natural Resources

(IUCN) The International Union for Conservation of Nature and Natural Resources is a network of governments, non-governmental organisations (NGO's), scientists and other conservation experts. IUCN wrote the Botanic Gardens Strategy and set up the World Conservation Monitoring Centre at Kew (Bramwell *et al.*, 1987)

National Council for the Conservation of Plants and Gardens (NCCPG)

The National Council for the Conservation of Plants and Gardens was set up in Britain in 1978 (Lowe, 1988, 1989). According to the council website (<http://www.nccpg.org.uk>, accessed 16/11/01) it seeks to:

conserve, document, promote and make available Britain and Ireland's great biodiversity of garden plants for the benefit of horticulture, education and science .

The issues concerning the council include maintaining the availability of the huge range of cultivated varieties of garden plants to the public. Council members aim to maintain collections of the widest possible representation of a genus or part genus. They have set a rule of thumb that any garden plant cultivar found in less than three commercial nurseries is considered at risk (Lowe, 1988). The council has established a register of National Plant Collections and publishes a National Plant Collections Directory periodically (NCCPG, 1992,2001). A list of collections is available on the council website (<http://www.nccpg.org.uk>, accessed 16/11/01).

Plant Collections Network

There is a Plant Collections Network in New Zealand with branches in Auckland and Wellington, which provides the opportunity for members to discuss collection goals. A foundation of a national plant collections database has been established at Massey University (MacKay, 2000), but funding is required for its expansion and maintenance. There are also many organisations providing networking opportunities for specialist plant groups such as Tree Crops Associations, Rhododendron Society, International Dendrology Society.

The Plant Finder

The Plant Finder is a publication listing sources of availability of many species of garden plants. Again the UK led the way in the establishment of the RHS British Plant Finder (Royal Horticultural Society, 2001-2002). A similar resource has been established in New Zealand (Gaddum, 1997). The first edition of this publication was limited in scope, in terms of participating nurseries and plant species covered, but the second edition (Gaddum, 1999) has a broader range of nurseries included, and is available on the Internet. Any resource of this nature is limited by the skill and knowledge of the contributors and the author. Regular updates are very important, as a result of the high turn over of nursery

stock trends. Previous research has shown only 20% overlap between tree species found in collections and those available in the nursery trade (Mackay, 1996).

World Conservation Monitoring Centre (WCMC), Cambridge, UK

This centre was established in response to Agenda 21 of the United Nations Conference on Environment and Development in Rio de Janeiro in 1991. It holds a wide variety of biodiversity data from around the world, in published and electronic form. (Groombridge, 1992; WCMC, 2001). In particular, the centre monitors rare and threatened plant information (Jamil, 1998). The Centre, based at Kew Gardens, has largely taken over this function from the Threatened Plants Committee set up by the ICUN, which produced the IUCN Plant Red Data Book (Lucas, 1978). Their website includes databases of threatened plants and biodiversity data on particular countries. (<http://www.wcmc.org.uk>, accessed 04/11/01).

The Tree Council

This is an informal group aiming to protect and improve the treescape of the Auckland region and to provide public education about trees (Hogan, 1990; The Tree Council, 1998). The Tree Council run a Community Tree Care education programme in partnership with UNITEC Institute of Technology (UNITEC, 2001).

Botanical Society of New Zealand

The Botanical Society carries out surveys of natural and urban areas of interest which are published in their national journal. Members have a broad botanical interest and frequently provide tree identification information for Auckland tree collections (Bryan Gould, Auckland City, personal communication, February 2000).

Royal New Zealand Institute of Horticulture (RNZIH)

This is the national horticulture body in New Zealand. According to the institute's website (<http://www.rnzih.org.nz>, accessed 19/12/01), its mission is to

encourage and improve horticulture in New Zealand, by promoting the understanding, appreciation, conservation and use of plants.

Amenity horticulture, gardens and tree advocacy are all part of their definition of horticulture. The Institute have published a Plant Collections Register, last updated in 1993 (Hammett, 1993). Genus checklists have also been prepared such as a register of Hebe cultivars (Metcalf, 2001).

Commentary

The decline in biodiversity is identified as the number one environmental issue facing New Zealand in the State of New Zealand's Environment 1997 (MFE, 1997). Biodiversity is also proposed as a measure of sustainability performance in the RMA (1991). The recent '*Bio-What?*' preliminary report by the Ministerial Advisory Committee (Department of Conservation and Ministry for the Environment, 2000) describes the effects of private land management on indigenous biodiversity, and asserts that declining biodiversity in New Zealand is a clear sign that additional effort needs to be invested in plant conservation. Further research into methods for the valuation of ecological services is urgently needed, in order to ascribe economic, and therefore, political weight to the biodiversity conservation debate.

The absence of any reference to exotic biodiversity in policy and legislation such as the RMA (1991) is indicative of an attitude that ignores the values of exotic flora, and therefore privileges native flora in terms of management funding. There is no reference to exotic biodiversity, or to the role of scientific plant collections in conserving economic and amenity plants important to the economy and cultural heritage of New Zealand. This highlights the importance of raising the profile of exotic plant collections and the organisations which seek to manage them (Given, 1986/1987; Hammett, 2000; Oates, 1992).

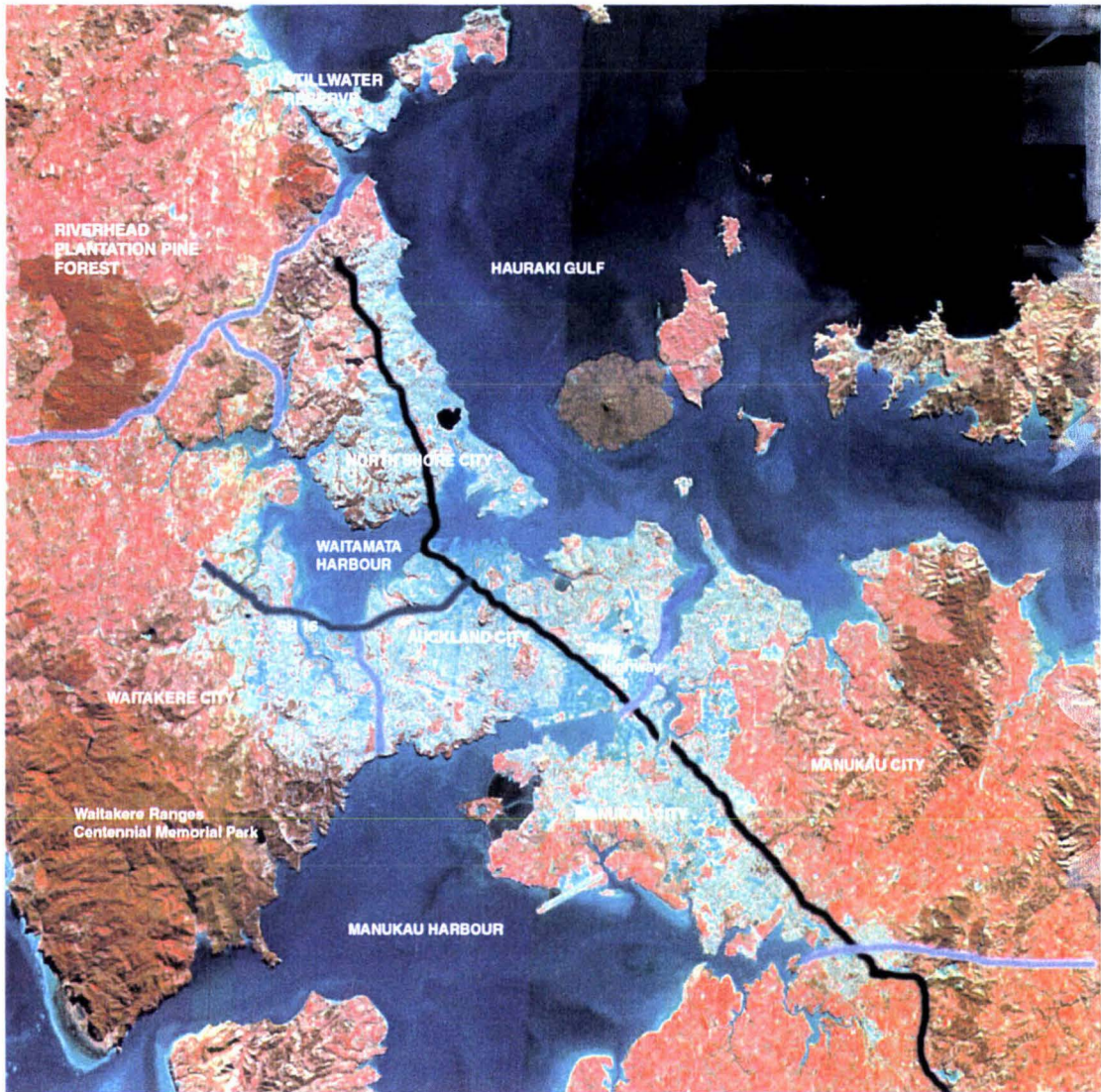
The debate on the relative values of native versus exotic vegetation is a crucial line of argument in this study. New Zealand's native flora is recognised as a genetic resource of global importance (Oates, 1992, Groombridge, 1992). It is wholly appropriate that it should be protected for generations to come. However introduced species are also of great human and biological value to

New Zealanders, as an expression of our history, sense of aesthetic. The functional and economic uses of exotic plants make them worthy of protection and management also. The absence of strategic goals for exotic plant collections and their management noted by Oates (1992) is indicative of a current bias towards native conservation, which has the potential to cause the undermining and decline of the important exotic tree resource present in New Zealand. Documentation of this resource is a step towards the acknowledgement of its values.

1.4 The Auckland Research Context

Many of the individuals who planted Auckland's tree collections had a vision for the legacy enjoyed by residents and visitors to the city today. Examples in historical records include Sir John Logan Campbell (Cornwall Park Trust Board, 1994), Governor Sir George Grey (Sparrow, 1999), and Auckland Parks Superintendent Thomas Pearson (John Adam, Auckland Garden History Society, personal communication, March 1999). Groups such as the Auckland Preservation Society and the Tree Society worked to enhance the treescape of the Auckland region in the early 1900's (Hogan, 1990). These tree collections, form part of the overall vegetation pattern of the city, and have many and varied values which make them important, particularly in the urban context.

The spatial character of Auckland is shown in the aerial photograph (**Map 1.1**) below. The photograph has been colour enhanced to show different vegetation character types. Forest vegetation, including both native and plantation forest is shown in brownish-red. This includes the Waitakere and Hunua ranges, Rangitoto Island and Riverhead plantation pine forest. Orange-pink, on the map indicates open green space, including park landscapes of grass and trees, while grey-green shows built-up suburban areas. Cyan-blue indicates commercial and industrial areas. The purple lines show the approximate boundaries of the four cities of urban Auckland, which are Waitakere City, North Shore City, Manukau City and Auckland City. The thick black line indicates the path of State Highways 1 and 16.



Map 1.1 The Urban Forest of Auckland (Bradley, 2000).

A larger fold-out version of the map is provided inside the back cover of this thesis. The bright yellow squares shown on this version indicate the locations of the tree collections included in the study. Some collections however, have no precise location, for example the street tree and notable tree collections, which are spread throughout the relevant city boundaries, and can not therefore be shown clearly on a map.

A clear and concise description of the character of the Auckland's original vegetation is given by Cameron *et al.*, (1997), who note that coastal forest featuring pohutukawa (*Metrosideros excelsa*), karaka (*Corynocarpus laevigatus*) and kohekohe (*Dysoxylum spectabile*), fringe the extensive coastline of the Auckland harbours and coast. Massive kauri (*Agathis australis*), rimu (*Dacrydium*

cupressinum) and rewarewa (*Knightia excelsa*), characterise the mixed broadleaf podocarp lowland forest remaining in the Waitakere and Hunua ranges and in pockets scattered throughout the region, while manuka (*Leptospermum scoparium*) dominates remaining shrubland areas. A fuller paraphrase of this description is included as **Appendix 2**. Auckland's mild subtropical climate, high rainfall and range of soil types described clearly by Morton (1993), provides an ideal growing environment for a wide range of plants from all over the world. This includes a larger number of naturalised exotic plants than any other city in the world (Atkinson & Cameron, 1993), and a ratio of alien plants established in the wild, relative to native plant species of greater than 1:1, one of the highest in the world (Williams & Lee, 2001). Because of the abundance of potentially weedy species, the National Surveillance scheme for Plant Pests set up under the Biosecurity Act (1993), is particularly relevant to the Auckland region (Auckland Regional Council, 1996).

American and European literature has developed a model known as the 'Urban Forest' to describe an understanding of urban vegetation. American authors use a broad definition of the Urban Forest which includes components such as street trees, vegetation in parks and reserves, urban squares, land around city buildings, monuments and cemeteries, parking areas, riparian margins, utility easements, special areas, public land, private land, commercial sites, native forest remnants, plantation forestry etc. (Grey, 1996; Lewis, 1990; Meunier *et al.*, 1998, Miller, 1988; Phillips, 1993). All urban vegetation sited on these different ownership and land-use types and sit nested within the American model.

European literature limits the use of this term to large forested sites (native or plantation) in or near urban areas, under public ownership. Privately owned land is generally not included (Clouston & Stansfield, 1981; Konijnendijk, 1997). Plant collections are clearly part of the American model of the Urban Forest but not the European concept.

This brief overview to the physical context of tree collection management in Auckland confirms the usefulness of the American Urban Forest model. The

multi-faceted nature of the components of urban vegetation and the contribution of the non-forest components in Auckland is easily identified. Considering all urban vegetation collectively and considering its management in a holistic manner is clearly useful for these many components. Auckland has large tracts of native forest in the nearby Waitakere ranges, and pine plantation forest at Riverhead, but also important urban greenspace vegetation. There are areas of vegetation within suburban areas along transport corridors of the state highways 1 and 16 and the main trunk railway lines and north-western line to Waitakere. Rivers and creeks provide further green linkage throughout the city, as do the numerous parks and reserves, grounds around commercial and public institutions, street trees and private gardens. Using the American model, vegetation planners are able to cross land-ownership and territorial local authority boundaries, as recommended (Grey, 1996; Clark *et al.*, 1997; Lewis, 1991; Miller, 1988), and strategically plan for the urban vegetation collectively, as can be contemplated from the aerial photograph in **Map 1.1**. Open space networks such as conceptualised in urban ecology models, briefly described below may also be planned for the region (rather than particular local authority boundary areas) providing multi-purpose greenways with both ecological and human-use benefits (Cook & van Lier, 1994; Lewis, 1990,1991).

Frederick Law Olmsted recognised the potential of linear open spaces for providing access to city parks and extending the benefits of parks into nearby neighbourhoods as early as the 1860's, which he termed 'park ways'. Olmsted designed many linear park systems for American cities, the most famous, and fully implemented system in Boston. The connected parkway system, known as Boston's Emerald Necklace, encircled the city with multi-use green space, and also addressed drainage and water quality problems as well as open space provision (Smith & Hellmund, 1993).

The term 'greenway', was coined in the late 1950's, and is perhaps best explored by Phillip Lewis, professor of Landscape Architecture, University of Wisconsin (1964), and Ian McHarg's influential book '*Design with Nature*' (1969).

It may be described as a linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridgeline, or a human-use corridor such as a railway right-of-way converted to recreational use, a canal, a scenic road, or other route (Little, 1990).

In the last two decades, there has been a co-operation between ecologists and landscape planners, to develop the area of theory known as urban or landscape ecology (Ahern, 1994; Bradshaw, 1986). A multi-purpose landscape matrix model is proposed, managed for multiple uses (Dramstad *et al.*, 1996) where human use such as recreation and protection of cultural values are analysed along with ecological values. The landscape matrix model brings together the importance of the many different vegetation types that make up the Urban Forest. Because it places value on human use **and** conservation, native remnant forest is considered alongside exotic amenity plant collections, gardens and utility or riparian corridor mixed vegetation. Urban vegetation can therefore be considered in a holistic way, in providing ecological and human use services in the city (Anstey, 2000).

Geographic Information Systems (GIS) enable the mapping of spatial information gathered from aerial and satellite imagery, and are becoming increasingly valuable tools for landscape ecological planning and assessment (Dwyer & Miller, 1999; Haines-Young *et al.*, 1993; Miller, 1988). This includes monitoring of plant species composition (Haines-Young *et al.*, 1993). Other methods of recording urban forest biodiversity are discussed in Section 1.6.

Having considered the values of trees in the urban environment, biodiversity in a global sense and concepts of landscape ecology, it is clear that to ensure the long-term preservation of these resources, a closer investigation into management principles and models is required. of these resources is critical.

1.5 Landscape Management

1.5.0 Introduction

Having considered the values of tree collections, it is clear that there is a need for management of this resource to ensure its continued existence and human use values. The purpose of this section is to consider the definition of management in general, the goals of landscape management, and to explore a range of models of management proposed in the literature. Specific tools useful in the management process will also be considered. The New Zealand legislation which relates to land and natural resource management will then be reviewed, particularly in relation to tree collections. Finally local territorial authority tree protection policies will be considered to give an overview of the regulatory environment within which Auckland tree collection managers operate.

1.5.1 Definitions and Models of Management

This section examines definitions and models of management. Sibbald *et al.* (1994) consider that principles of management apply to any type of organisation, from a household through to a multi-national corporation.

Management in general is defined by Gilbert *et al.* (1995, p. 8) as a:

goal-oriented process that involves the allocation of resources and the co-ordination of the talents and efforts of a group of people.

Sibbald *et al.* (1994, p. 10) describe management as:

the process of setting objectives, organising resources to attain these predetermined goals and then evaluating the results for the purpose of determining future action.

Both these definitions highlight the importance of goal setting, and that management deals with organizing or allocating resources. Gilbert *et al.* (1995) expands on the meaning of resources to include of both physical resources and people. Sibbald *et al.*'s (1994) definition asserts that evaluation of success is also

important, which suggests a cyclical process. These three phases may be termed the strategic, operational and monitoring phases of management.

Current management models also convey that an organisation can be represented as a set of interrelated parts that function as a system, with inputs and outputs, and 'open' to exchange of information, energy, materials and people with an external environment, including the political and economic context (Sibbald et al, 1994). Management systems must be able to accommodate changes in this external environment (Bromley, 1994).

Within the management system, the functions or roles of a manager are to plan, organise, empower, control (Gilbert et al., 1995), make decisions and communicate (Sibbald et al., 1994). Planning is the crucial phase of thinking about what you are going to do, how to do it and what you hope to achieve. Organising can be described as arranging resources and skills, and establishing structures, roles and systems. Empowering is inspiring, coordinating and enabling employees. Controlling is the stage where the manager evaluates the system output in comparison to what was planned. Decision-making may be as simple as choosing between alternatives, but more commonly involves identifying the problem, analyzing it, coming up with the alternative solutions and then selecting the best solution. Communication is the process by which information is exchanged and understood, and is required between all levels of an organisation. Any, or all of these management functions may be required at the strategic, operational and monitoring phases of the management process. Gilbert et al. (1995) propose a management cycle shown in **Figure 1.1**.

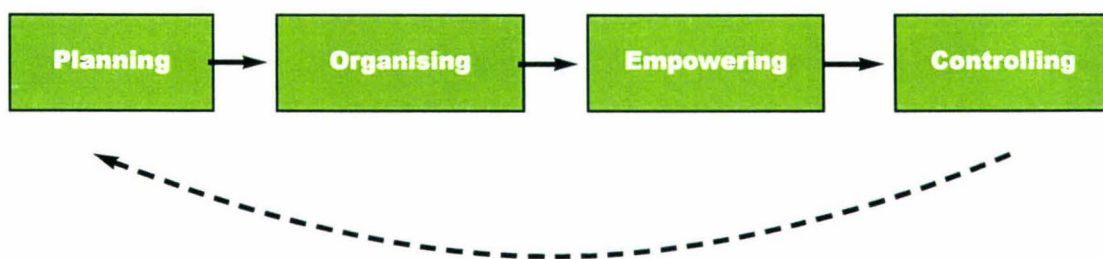


Figure 1.1 Management Cycle (adapted from Gilbert et al., 1995)

These functions allow the management process to proceed. They may be related back to the initial definitions and grouped into strategic functions (planning), operational functions (organising and empowering), and monitoring functions (controlling). Decision-making and communication are clearly management functions at all stages of the cycle.

Grey (1996) proposes a very similar model to Gilbert *et al.*, (1995), but breaks the planning stage into two stages of the cycle, as shown in **Figure 1.2**. Strategic or long-term planning, may be expressed as goal-setting and policy making, while operational or short-term implementation planning includes activities such as budgeting, financial planning, staffing and site maintenance. Strategic planning precedes operational planning, which is developed in light of the long-term goals.

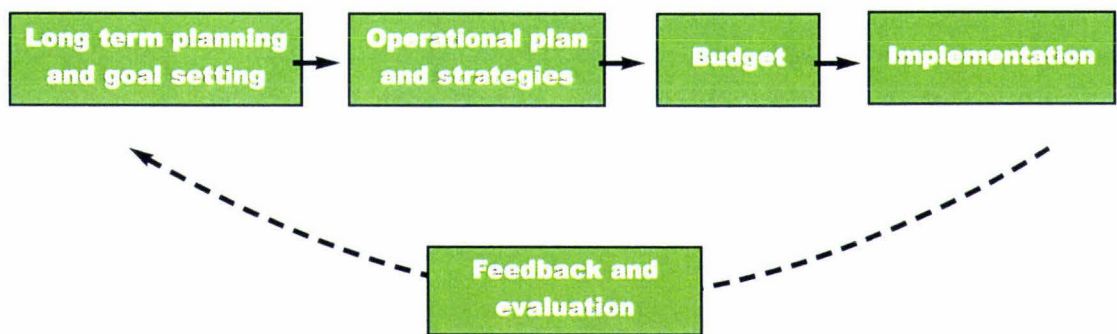
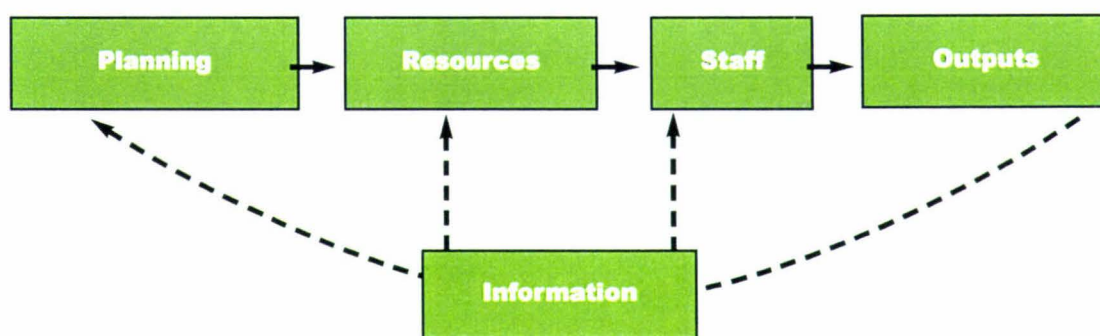


Figure 1.2 Management Cycle (adapted from Grey, 1996)

The budget stage shown in Grey's model may be better integrated into the operational planning stage, as in his explanation, along with staffing etc. The term implementation moves into the action phase of the management cycle and would certainly include empowering staff, as in Gilbert *et al.*'s model, but also encompasses other aspects included in the operational functions listed above. Most management models do not include implementation as a management function, but this obviously depends on the scale of the organisation. Many tree collection managers are intimately involved with implementing the operational plan.

An important characteristic of evaluating the results of management planning and implementation is termed a monitoring or feed-back loop. Without this stage an organisation is less likely to learn from its successes and failures (Chua, Lowe, & Puxty, 1989). Urban Forest management research has shown that a lack of strategic planning and feed-back monitoring stage, results in poor management practices and outcomes (Meunier *et al.*, 1998).

In their exploration of information systems for management (as opposed to management systems in their own right), Chua *et al.* (1989) identify accurate and up-to-date information is a vital aspect of an effective feedback loop. This information or data must be organised into a system of regular reporting back to the planning stage of the management cycle. They propose a model (**Figure. 1.3**) whereby information systems provide data for all levels of management, enabling constructive planning and organisation responses to any internal or external system changes.



*Figure 1.3 Information Systems in the Management Cycle
(adapted from Chua et al., 1989)*

The other key point made is that to be effective, information and evaluation best happen in time to influence the system output, rather than at the end of the process when failure or poor product has already occurred. They term this a perfect regulator, where the information is fed back and analysed in time to influence the end result. Planning this monitoring stage is clearly an important management activity. Neither of the other models include this superior system of incremental monitoring.

The key concepts gained from these three models are firstly that all models portray management as a cycle, with some kind of feedback loop providing information about the success of the cycle. The four main functions or roles of management put forward by Gilbert *et al.* (1995) of planning, organising, empowering and controlling may be compared Grey's terms strategic planning, operational planning, budget, implementation and feedback. Organising and empowering may be equated to operational planning. Budget considerations in Grey's model may certainly be collapsed into this operational planning stage also. The resources being acted on by the management are staff, raw materials of some type and budget resources. The stages which occur in the management cycle are strategic planning and operational planning (organising), implementation (empowering staff), producing outputs and monitoring the outputs, inputs and environment via information systems.

Only Chua *et al.* indicate the importance of a multi - stage information feed back loop system, but this may be easily adapted to the other models.

A summary of the analysis of the preceding models considered is shown in **Figure 1.4**. Strategic planning, operational planning, implementation, and monitoring are served by effective information systems. This diagram and the summary it represents will be taken forward into the next section which focusses in on the more specialised field of landscape management.

Some of the models express the nature of the relationship between the operating environment such as legislative and policy regulations. Sibbald *et al.* (1994) describe this 'outside environment' in their diagram of systems approaches. Plant collections management systems are not isolated from outside environmental factors such as territorial authority policy,

organisational budget policy, supply of staff resources, and climatic factors effecting system outputs. This external context must must also be represented in a final model.

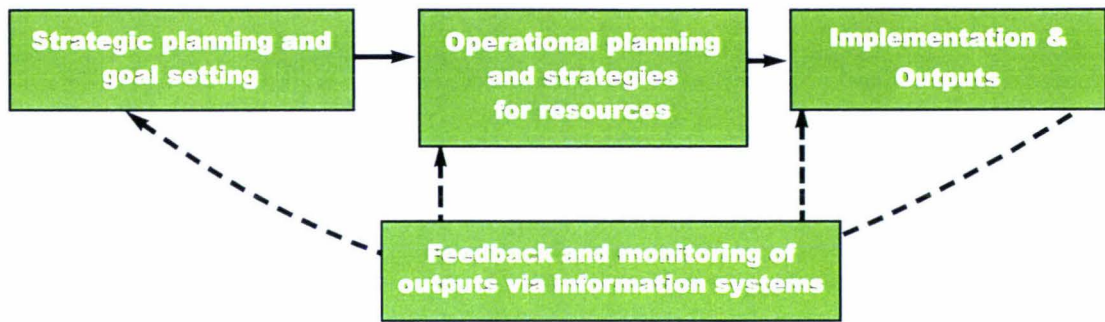


Figure 1.4 Revised Management Cycle Model

The next step is to consider how this four stage process of management relates to a landscape setting, and then what tools and technologies are available to landscape managers to facilitate the different stages.

1.5.2 Landscape Management

Many definitions of landscape management found in the literature have similarities to the business models of management considered above.

Wright (1982), In Hitchmough (1994, p.2), defines landscape management as:

concerned with longer term planning and policies and the organisation of staff and equipment to achieve efficient maintenance. Long term decisions about vegetation management will also be a factor.

Cobham (1977), In Hitchmough (1994, p.2), on the other hand, defines it as:

a task undertaken by professionals to ensure that the objectives of the landscape designer are achieved on the ground in such a way that the landscape evolves and matures over time to the satisfaction of both designer and user.

Planning, policy formulation and organisation of staff and resources are all included in Wright's definition. Cobham's definition concentrates on the concept of achieving aims over time. It is clear that the first definition concentrates on landscape maintenance and the second definition

concentrates on development of landscape designs. A thorough definition must incorporate both design and maintenance aspects, and embody the understanding of the landscape as a system and identify the need for monitoring that system. Cobham's subsequent handbook for amenity landscape managers (Cobham,1990) has a very technical maintenance focus, in response to his perception of the need for an up-to- date, technical reference manual for landscape managers. It does however, also list other aspects of landscape management not covered in depth in his book. These include landscape planning and design, along with maintenance, defining well the 'scope' of landscape management.

Commentary

Cobham (1990) also notes that these are reflected in the three arms of the British Landscape Institute, which are Landscape Management, Landscape Science (botanists, ecologists, hydrologist etc.) and Landscape Design (landscape architects). In comparison the New Zealand Institute of Landscape Architects (NZILA), acknowledges four areas of professional activity. These are landscape assessment and planning, landscape design, detailed design or contract administration and education and research. To be admitted into membership applicant's must demonstrate activity in three of the four areas (<http://nzila.co.nz> -accessed 9/11/01). A landscape architect operating as a landscape manager would not gain credit towards NZILA membership under this regime. The Landscape Industries Association of New Zealand (LIANZ), accredits its members in up to five categories. These are landscape design, hard landscape construction, soft landscape construction, landscape care and project management. The description of landscape care on the LIANZ website includes landscape maintenance. Landscape managers would therefore be eligible for membership under this category (<http://lianz.co.nz> -accessed 9/11/01). The New Zealand professional and industry groups can therefore be seen to acknowledge landscape planning, design, construction, maintenance, research, education and contract management as part of the Landscape Industry, but have not yet embraced Landscape Science as a recognised subset of professionals.

Some authors move away from the design, maintenance argument by focussing on landscape outputs. Jubenville and Twight (1993) have an emphasis on recreation management. They place emphasis on the achievement of outputs of a particular landscape as a recreational experience.

Mackay (1996, p.11) also refers to landscape outputs in a definition of the mission for landscape management:

The overall mission of landscape management is to achieve optimum value from the landscape.

This definition is intended to be broad and without detail about what the values gained from the landscape might be, to encompass any output appropriate to a particular landscape.

Hitchmough (1994, p. 2) quotes Pryce, (1989):

Landscape management is the activity concerned with determining or elucidating the on-going functions of landscapes and with ensuring that these functions are fulfilled.

In using the term 'on-going functions of the landscape' this definition alludes to a similar 'output' concept as Jubenville & Twight and Mackay and acknowledges the long-term values of a landscape and the concept of sustainability. The terms 'determining and elucidating' may parallel the planning phase of the business models. The last part of the definition brings in the concept of evaluating the success of achieving the outputs, found in the general management models. The concept of landscape management being output-oriented and therefore concerned with the on-going functions of the landscape are accepted for this study. With these concepts in hand, the next section considers how the landscape manager translates them into a management system.

1.5.3 Models of Landscape Management

In seeking a model to further describe the elements and relationships in a landscape management system, several authors were reviewed. Cobham (1990), Hitchmough (1994), and Bromley (1994) are considered major texts on landscape management. None of these authors put forward a specific model of management.

The following section surveys the elements of landscape management and the relationship between the elements discussed by these authors.

Cobham's (1990) book *'Amenity Landscape Management'* does not indicate a backdrop of any particular management model. Neither does it refer to the generic roles of the manager. However it does list the four primary scopes of responsibility for an amenity landscape manager. Those are managing visitors, facilities, the environment, utilities and administrative services. He makes mention of monitoring 'success' as an administrative function.

A current example of an information system model used in New Zealand is embodied in the NZ Infrastructural Asset Management Handbook . This system aims to provide the basis for monitoring and reviewing a wide range of resources. It is a complex inventory system designed for local authority asset management. Its limitation for trees is the fact that is not designed to acknowledge biological values. Assets are recorded on the basis of type, location and age. There is only one classification type for vegetation, which is individual large trees. This classification may be critiqued as a limited record of the vegetation resource in most parks, with lawns, shrubs, flower beds and stands of native vegetation not being taken into account. Not all information categories required for a standard plant inventory are included, but it does encourage corporate managers to monitor tree assets where they may not otherwise have done so. Parks managers surveyed did not report the use this system for trees but grounds managers at UNITEC Institute of Technology did.

Bromley's (1994) text on recreation management covers the scope of landscape

management as: Planning, Staffing, Facilities, Interpretation and Marketing. He also discusses the legal framework in which the British landscape manager is operating. This acknowledges the external environment within which the landscape manager operates. He also highlights the importance of managing change occurring in the external environment, alluding to the concept of being responsive to that change.

Landscape management is described as a 'complex activity' by Hitchmough (1994) and Kirby (1986). It involves an appreciation and understanding of aesthetics and design (Cobham, 1977), environmental processes (Bridgman *et al.*, 1995; Hitchmough, 1994; Lemons, 1987), cultural roles and values of landscapes (Lemons, 1987), governing statutes, governmental policy and political processes (Bromley, 1994; Hitchmough, 1994), resource and financial management (Winning, 1986), and of landscape management technologies (Hitchmough, 1994).

Mackay (1996) develops in **Figure 1.5** a more holistic model of management for plant collections, which represents the interrelationship of these elements more successfully than the piecemeal approach of other authors. First the need for a manager to gain an understanding of the system being managed is identified, before the development of long-term goals (strategic planning). For tree collection managers this includes developing an inventory and evaluating the collection's physical landscape setting (this understanding could be developed further to include external factors reviewed above). Operational management planning for resources for a tree collection is more clearly defined in terms of vegetation management strategies. Feed-back loops are identified as being necessary for both strategic and operational planning reviews.

This model provides a useful expansion of the basic management model in **Figure 1.4**. It describes stages necessary in developing a strategic position (or strategic plan in previous terminology). Identifying the goals of the collection, developing an inventory of the collection, and evaluating the site values are

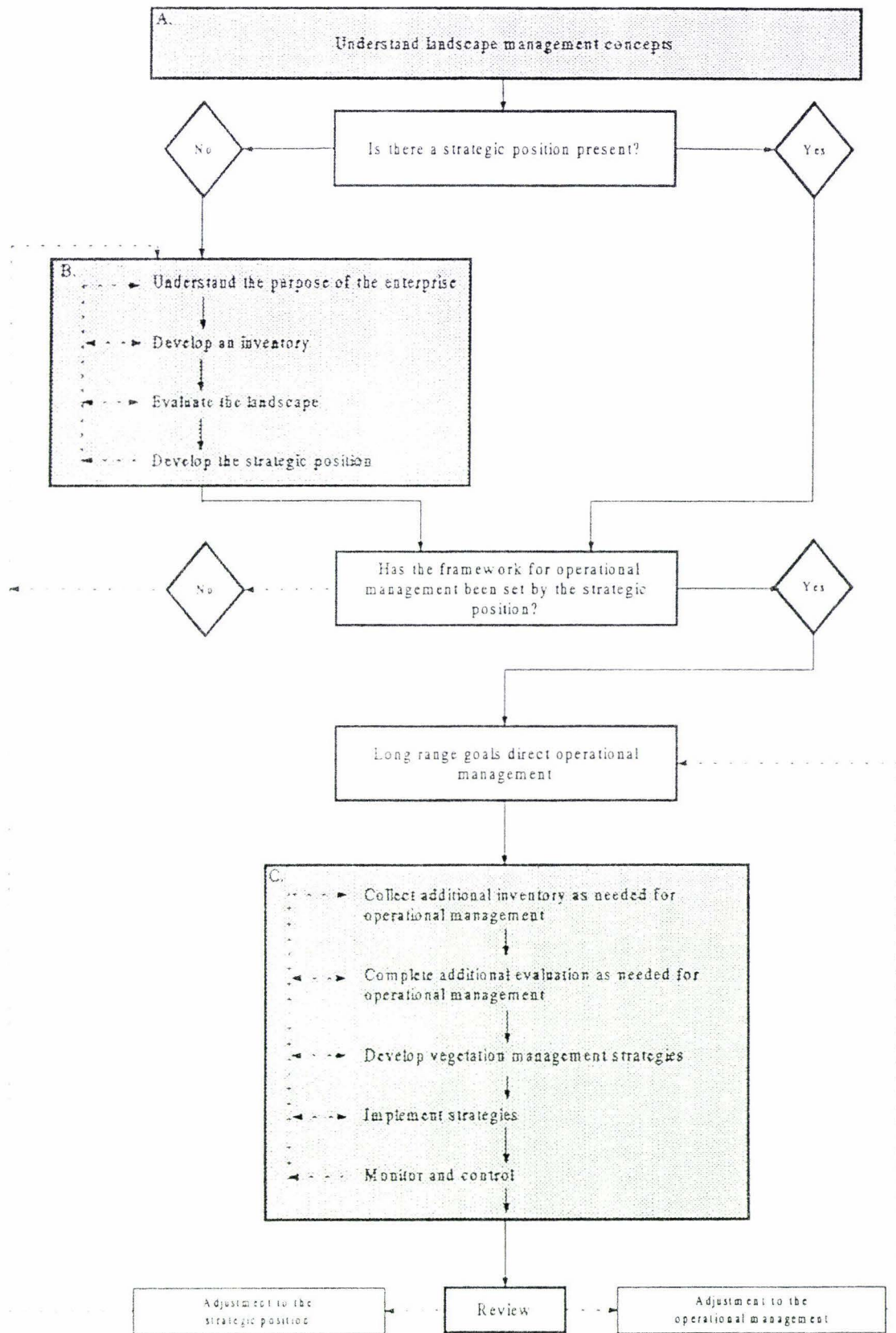


Figure 1.5 Management Model for a Plant Collection
(Mackay, 1996)

the stages identified, and these will be used in evaluating the management performance of the Auckland collections. These stages in developing a strategic position correlate well with those described in Bromley's (1994) outline of a Management Plan in section 1.6. This correlation supports the Management Plan as an appropriate expression of the strategic position for a plant collection, as well as the operational plan.

Jubenville and Twight (1993) suggest a model for describing outdoor recreation management. This model deals with the recreational experience as the sole output of the system, but demonstrates concepts applicable for a wider range of landscape outputs. To make this possible, the primary goal of plant collection management must be used as a measure of applicability. This goal is the continued existence of the plant collection (resource conservation).

Jubenville and Twight's 'Outdoor Recreation Systems Model' gives a useful framework for describing landscape management as a system in equilibrium based on the levels of inputs and outputs. It identifies inputs to the outdoor recreational experience as the natural resource base (the site), the visitor and the service (administration) management, and shows the political or legislative environment in which the system operates, shown in **Figure 1.6**. The sub-systems of the management system of resource, services and visitor management all affect each other and so are interrelated.

In this systems model, the three primary inputs are the visitor, the natural resource base and management. The visitor is identified as the most important element in the recreation system, since the recreational opportunities are planned for the visitor in this model. The natural resource base, or environmental setting, is the medium in which the activity takes place. In terms of providing the recreational experience for visitors, the physical

characteristics of the site are described as less important than how they are perceived by the visitors. This is not the case with scientific plant collections, as the continued existence of the plant collection (resource conservation), must

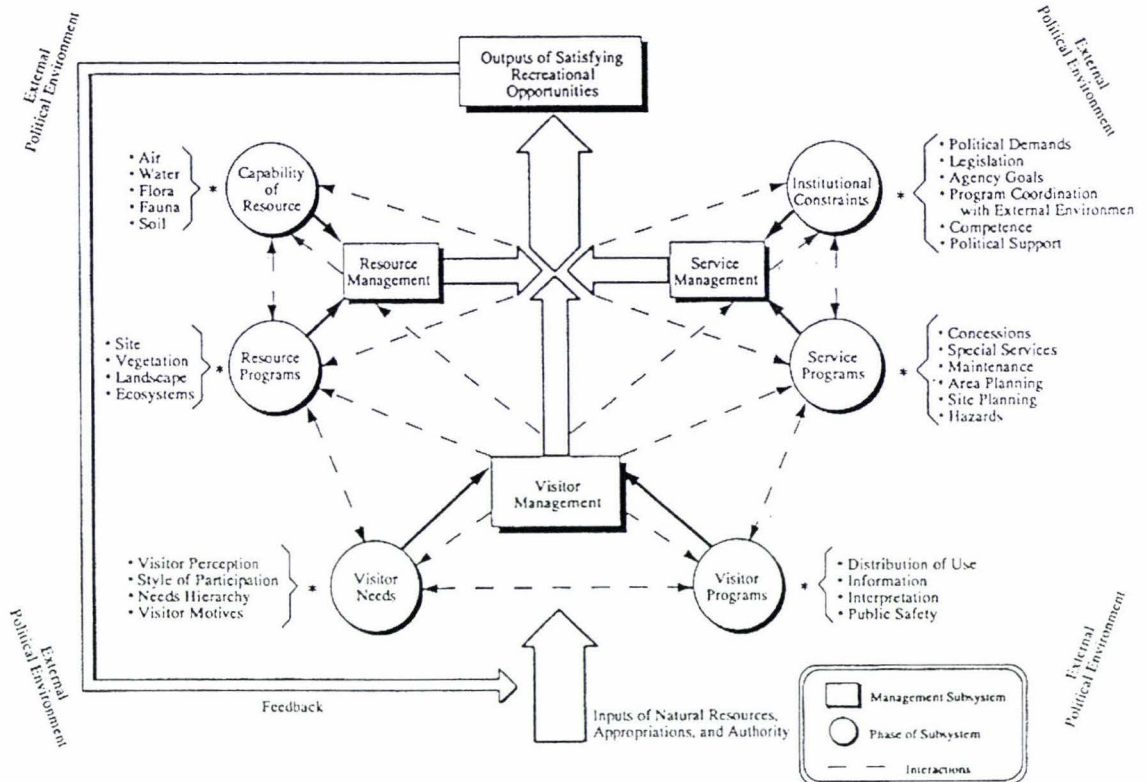


Figure 1.6 The Outdoor Recreation Systems Model (Jubenville and Twight, 1993).

be the primary goal of management, complemented by goals of human recreational and educational use, and research goals. Operational management systems co-ordinate the activities and services on the available resource base with the needs of visitors coming to the site.

The model does not provide a description of 'how' the subsystems will be managed. The central arrows of the diagram indicate the management process described by Mackay. The strategic, operational, implementation and monitoring phases are required for each of the three subsystems. Information, principles and creativity are required to ensure the management process provides an appropriate strategic and operational plan for the systems. In the longer term, management systems must protect the integrity of the resource base and its values in order to be able to provide the desired recreational experience. This is an implicit intention of the capability of resource sector of the model, and the text includes evaluation, base line determinants, monitoring and maintaining of the natural site resources as important for the specified recreational opportunity output. Service management includes finances, health and safety, facilities and circulation, staff and strategic

planning (including development planning and related legislation interactions). Visitor management includes information, interpretation, visitor safety and monitoring of visitor needs and whether they are satisfied. This monitoring is an important method of evaluating the results of management planning and implementation. It is termed a feed-back loop and is especially important where changes in resource use or practices are evaluated in terms of their impact on the system equilibrium and resulting outputs, such as visitor satisfaction.

Vogt *et al.* (1997) in their book on ecosystem management reinforce both the systems approach and the importance of understanding the biological and cultural management context put forward by Jubenville and Twight (1993). They use the term 'adaptive management' instead of the term 'management system', but refer to the equilibrium of many factors, and to the importance of information systems to allow feedback mechanism. They refer to management plans and information systems as essential management tools and the need to identify ecological capacity and limits. The component not mentioned in their model is evaluation of the human-use outputs of the system. They do not consider the visitor in any other way than as a load on the ecosystem. This ignores the multi-use nature of plant collection sites under consideration in this research.

In analysing the usefulness of this model for tree collections in Auckland, the Auckland Regional Botanic Gardens will be considered as a case study. These Botanic Gardens can certainly be seen as a site for recreational opportunity. Recreational experience is an important output sought from the gardens (Auckland Regional Council, 1995), however as a single output it is too narrow. Education and scientific research are also documented goals of the gardens, and certainly important reasons why people visit them. There is a focus on both the visitor, and also on conserving the special plant resource, not well accommodated by the Outdoor Recreation Systems Model (Jubenville and Twight, 1993) discussed above. The model accounts particularly well for the 'service' and 'visitor' management systems at the Botanic Gardens. Analysis of the 'resource' management category put forward by the model highlights a

narrow focus of understanding of vegetation management, as arboricultural maintenance programmes, which are totally insufficient for a botanical collection, requiring specific curation, horticultural management and maintenance.

Recreational landscape value and biological or ecological value are implicit in Jubenville and Twight's (1993) model. However cultural values such as 'historic' values are not acknowledged specifically. The resource management system under resource programmes could be broadened to include cultural values along with the biological assets listed.

This model does not identify the important role of information systems in monitoring the landscape system, but the interaction arrows do indicate locations where information flows are possibly implicit for the functioning of the system to be responsive or 'adaptive' (Vogt *et al.*, 1997) to change. Changes to external regulation such as employment law can be seen to affect the service subsystem, whereas a tree protection regulation change for regional parks would affect the resource management subsystem. The visitor subsystem could be affected by a change in transport costs to the gardens. Changes to the external environment can therefore be accommodated by the Jubenville and Twight (1993) model.

The 'Service Management' categories include maintenance and site planning, but could be further broadened by including design of new development to emphasise the importance of visual values. The need for such design is very apparent at the Botanic Gardens at present, with the preparation of a development plan by landscape architect Stephen Brown, to enhance spatial definition, strengthen important vistas and a sense of 'progressive realisation' across the site for visitors. These aspects would be better described in a separate category termed landscape or site design.

The model identifies the influences of visitor needs, carrying capability of the site, and management goals have on the management process. The management of the wide range of resources and service functions are identified. Financial and staff management are not specifically identified

within the model, but they would sit appropriately in the Service Management system, under Service Programs.

Commentary

The models considered in Section 1.5.3 illustrate many useful concepts of landscape management. They illustrate many of the complex interrelationships between aspects of management and show that all the aspects of the management system are interdependent with each other. The systems model, proposed by Jubenville & Twight (1993) illustrates how change in any of the elements or processes will affect other elements and therefore the equilibrium of the system. The specific nature of the natural resources involved in landscape management has been noted from Vogt *et al.* (1997), and of plant collection management from Mackay (1996). The Mackay model expands the understanding of the stages of the management process significantly, but focuses on the management of continued existence of the plant collection, i.e. the biological resource rather than the human use values. Jubenville & Twight consider goals of three subsystems, the biological resources, the human uses of the site, and the service or administration systems. The external influences on the landscape management system are also acknowledged in the model. To modify the model for Plant Collections, the tension between biological and human use values may be well represented by two equally important subsystems. The feedback or monitoring loops shown by Jubenville & Twight are achieved by resource monitoring such as plant record systems, and by visitor feedback in the plant collection setting.

The Mackay model significantly expands the explanation of the management process covered in the business models considered previously. It focuses on the management for the continued existence of the landscape, and in particular the biological values of the plant collection, rather than the management of human use in that landscape. The stages of the management process are clearly outlined for plant collections, but the context within which they happen is only alluded to implicitly in the term 'understand management concepts'. The explanation of this could be expanded to include the political context. Jubenville and Twight identify the external influences on the

management system and indicate a relationship between the management system and external political context, particularly in relation to service management and institutional constraints, but also more generally for the resource and visitor management subsystems. It is in both these arenas that an understanding of the national and local statutory context is important. Jubenville and Twight provide a detailed coverage of the components which must be managed, but do not provide a description of 'how' to manage them, i.e. the process, which is the strength of the Mackay model.

Together the models express the 'process' and 'content' necessary for landscape management, particularly for sites such as public parks and botanic gardens. The process of management is very clear in the Mackay model, explaining the 'how' to manage, where the Jubenville model explains 'what' to manage. Both the process and content concepts developed in the models will be adopted to synthesise a new model proposed in Chapter 5.

The Bromley and Morgan templates for management plans or strategies are the pragmatic outworking of a management model. Bromley states that management plans seek to guide practical and physical developments towards clearly stated goals and objectives. As such they are likely to play a major role in recording the raw data for management systems, and may even provide a basic model of management where no other model is explicit.

The management practice data gathered in this research will be compared and related to the management models considered in this section.

Returning again to the task of the plant collection manager, having expanded the basic management process derived in **Figure 1.4** for landscape and plant collection management, the strategic, operational and monitoring stages will be considered consecutively, and the relevant management tools considered for particular stages. Then the external context of tree collection management will be considered in Section 1.7.

1.6 Management Process: Strategic, Operational and Monitoring Stages

1.6.0 Introduction

The cyclical management process or system adopted in Section 1.5 identified the strategic, operational and monitoring stages of management. These will now be considered in more detail, along with the relevant management tools for plant collections found in the literature. This analysis will be used to reflect on the findings of the management survey and then to synthesise a revised model in the discussion chapter.

Strategic Management

Strategic management is about determining a vision (objectives) and then working out strategies to achieve that vision (Grey, 1996; Sibbald et al., 1994). In the case of a plant collection, the strategic manager must first understand the nature of the site and of the plant collection in order to determine an appropriate vision for the site.

MacKay (1996, 2000), terms this vision a strategic position, and contends that three steps must be undertaken before developing a strategic position for a plant collection. These are identifying the purpose or broad goals of the collection, developing an inventory of the collection and analysing site values.

1.6.1 Landscape Goals

Landscape management may be undertaken at different scales or levels. Landscape planners and some landscape architects operate at a broad scale regional or national policy level and legal framework (Fabos & Macgregor, 1979). Most landscape architects in New Zealand and landscape managers tend to operate at site specific design and maintenance levels (Jackman, 1980).

Whether operating at a broad or local scale, landscape managers will first determine and adopt a set of broad-scale goals for the management of a specific landscape. These are ideally embodied first in national legislation, then the regional or district plan and also a specific landscape management plan.

The Resource Management Act (1991) lists the primary goals of landscape management under its jurisdiction as use, development, and protection. There are further landscape goals given in sections 6 and 7, under matters for which managers must have regard. These include preservation, protection, maintenance, development, recognition and enhancement.

Given (1994) uses three generalised groupings of goals under the headings development, conservation and protection. These terms relate well to those used in the RMA.

Cobham's (1990, p. 19) definition of landscape management goals:

The [landscape management] profession is called upon to undertake the multiplicity of activities involved with conserving, planning and perpetuating areas of land and their associated features to achieve a variety of commercial and cultural ends.

Here Cobham uses the terms conserving, planning and perpetuating to express management goals. Planning and perpetuating are not terms commonly used by other authors. Conserving clearly relates to the goal of conservation. Perpetuating would seem to relate to protection or preservation, and planning may relate to development planning.

The goals expressed in other literature range from exploitative 'slash and burn' destruction for human use, through to total protection of the site values by exclusion of threats to it, such as public access, animal pests and weed species. There are many shades of grey between these black and white extremes. From the outset of discussion it is clear that human use values and biological values are in tension or competition. This continuum between preferencing human use or biological values will be used to order the discussion of landscape goals.

Development / Use

This is the term used in the literature to describe the active use of natural resources for the benefit of humans. Development can be defined and carried

out at many levels of intensity. At one extreme it can be the uncontrolled use or exploitation of resources noted as evident when considering the history of western colonisation (Given, 1994). Clearance of tropical rainforest in developing Asian countries is cited as one of the most significant losses to the world's biodiversity in present times (Given, 1994).

A less extreme concept is given by Cronin (1988, p. 59), where she states that:

development is the modification of the biosphere and the application of human, financial, living and non-living resources to satisfy human needs and improve the quality of human life.

The continuing growth of cities all around the world is a clear example of this type of development. Hitchmough (1994) describes the provision of new landscape facilities for public recreational or educational use as a primary aim of urban landscape management. Here the term 'provision' is synonymous with development.

Agricultural, forestry and horticultural production systems throughout the world are based on the use of biological resources as commodities. Kirby (1986) gives examples of agricultural uses for rural land in Britain. Further examples of resources used for consumption include eco-tourism and medicinal use of plants. Sustainable consumption utilises biological resources as renewable consumer products.

Improvement or Enhancement

Development based on sustainable principles is sometimes termed enhancement or improvement (Welch, 1995). MacKay (1996) uses the term improvement and reviews many examples of forms that improvements may take, such as planting of new urban forests (Cobham, 1990) or rehabilitating polluted land for further human use (Fabos, 1979). City planning for new parks and arboreta such as Auckland City propose in their City Tree Policy (2000), are further examples. Landscape design plays an important role in landscape improvements. The focus is on the possible human use in all of these examples,

rather than ecological enhancement, for its own value. This may include enhancing an ecosystem or natural area, but the intended human use is the priority e.g. recreational walking or storm water treatment to enhance visual values of the area. Where ecological values take precedence, the goal is protection.

Conservation

The New Zealand Conservation Act (1987) defines conservation as 'the preservation and protection of natural and historic resources for the purpose of maintaining their intrinsic values, providing for their appreciation and recreational enjoyment by the public, and safeguarding the options of future generations'. Conservation landscape management goals therefore take the middle ground between preservation and human use goals, promoting sustainable use, where some resources may be utilised, while others are preserved (Cobham, 1990; Given, 1994; Hitchmough, 1994).

Cronin (1988) describes a conservation approach as a multi-faceted or integrated approach to resource use, identifying maintenance and enhancement alongside preservation. Sharpe *et al.* (1994) consider park management to require a conservation approach when they state that it involves provision for human use and resources protection.

Protection or Preservation

These two goals are sometimes conceived as different, but often the terms are used interchangeably in the literature. Mackay (1996) puts forward a case for the term protection to be employed where human-use exerts pressure on landscape resources, and preservation where the goal is purely for continued existence of a resource. This has some merit in the case of national parks (Laurie, 1986), where pristine landscapes are set aside for perpetuity. It can however also be argued that the need for preservation arises from perceived future human pressure, and that the argument for the distinction between preservation and protection of landscape resources from human inflicted pressures is therefore a little tenuous, as all land is likely to come under pressure for human use in the longer term, particularly in urban areas.

Preservation is concerned with preventing destruction of species, ecosystems and wilderness, even when they may have other legitimate human utility. This approach is considered appropriate for rare, sensitive and valuable habitats and landscapes (Given, 1994). Exclusion of non-human threats such as weeds and animals may be required in some cases (Evans, 1983) e.g. forest remnants covenanted under the Queen Elizabeth 2nd Trust Act (1977), are fenced off from grazing stock to allow regeneration of the native flora. Trapping pests such as possums and removal of invasive weed species are examples of management techniques, which contribute to a preservation goal (Given, 1994).

Commentary

The landscape goals reviewed demonstrate a continuum between favouring human use values through to giving biological values precedence. The distinctions between the other terms found in overseas literature such as Cobham, lack the standardisation found in the New Zealand legislative terms. The terms adopted here for New Zealand landscape management of development/use, improvement/enhancement, conservation, and protection/preservation clearly relate to the terminology for landscape goals to that used in the RMA (1991). As this is the language of territorial authorities in New Zealand and of the environment court, it is therefore the language landscape managers require to be able to engage in the broader resource management arena. The term restoration is not found in the RMA (1991), but is certainly a valid goal for heritage landscapes. The RMA terms maintenance and recognition do not relate as well to the continuum.

An understanding of these broad-scale or global landscape goal options will enable a landscape manager to analyse the combination and priority of site values to be taken into account for a particular site.

Landscape goals applicable at a national or legislative scale can be seen to be somewhat generic, and therefore of limited application for a specific landscape site. Application of the generic goals requires discrimination as to their applicability to the specific site values and uses. The landscape

management process allows generic analysis to be translated into strategic planning and implementation strategies and priorities. For example, a site with multiple values may require a combination of landscape goals applied to its management. These goals may also be seen in light of a total landscape system model. The landscape manager not only interacts with the site and its landscape values, but also the human users of the landscape and the social, political and economic context the landscape system operates within. A landscape manager must therefore have an understanding of all these factors to be best able to plan the appropriate goals for a particular landscape. It is therefore reasonable to expect that tree collection managers will report some of the generic or legislative landscape goals considered in this section, but also to report specific goals for the site that reflect existing site values and uses.

1.6.2 Inventory

The second step which must be undertaken before developing a strategic position for a plant collection is to undertake a landscape inventory. An inventory identifies and collects data needed for assessment of landscape values (Jackman, 1980). Inventories form the foundation for systematic landscape management, and are valuable in assessing the significance of a specific plant collection (MacKay, 1996). Plant data collected for the inventory becomes the basis of plant record systems for operational management described in Section 1.6.5. Other forms of inventory data such as historical records, topography maps and photographs, may be used to analyse a wider range of landscape values.

In order to manage plant collections effectively at an operational level, proper documentation of plant records must first be planned at the strategic stage (Given, 1994; Miller, 1988). Plant inventories are an important tool to document and monitor plant species diversity, as well as other aspects of plant collection documentation and management (Bromley, 1994; Evans, 1990; Grey, 1996; Lowe, 1989; Miller, 1988). Key benefits of effective plant inventories highlighted in recent research (Kelsey & Hootman, 1988; Doherty et al., 2000), include maximising use of limited funds and maintaining a sustainable level of tree health.

Given (1994) puts forward the strong case that plant documentation provides “information needed to reduce dramatically the decline in plant diversity, plant resources and habitats”. In conserving species, preparation of an inventory is the first step, followed by an investigation of distribution and habitat (Given, 1984). De Klemm (1985, p. 224) supports this view, by stating that “detailed inventories should be promoted to assist in the management of biological resources”. By keeping records updated can managers be effective in ensuring plant biodiversity is preserved and well maintained (Lewis, 1991; Tate, 1985). This will avoid plant losses leading ultimately to collection decline, due to problems such as poor establishment practices, extreme climatic conditions, poor weed control, and lack of renewal planting programmes (Bradshaw et al., 1995; Keith Hammett, personal communication, December 1998).

Plant inventory information may be gathered in different ways. Managers of recently established collections may record plant accession data from the beginning of the collection, whereas managers of older collections may need to do a complete tree survey. Survey staff may go on foot around the collection if it is relatively small in area. Vehicle drive-by surveys are useful for street tree surveys. For very large areas or regions, aerial or satellite photogrammetry analysis, such as Geographic Information Systems (G.I.S.) may be used to gather data on tree canopy cover and type (Dwyer & Miller, 1999; Grey, 1996; Haines-Young *et al.*, 1993; Miller, 1988).

The seven basic information fields of a plant inventory listed by Grey (1996), unless stated are:

- **Species lists.** All plant accessions in the collection are listed and dated. Accession is the term used to describe each different plant brought into a plant collection.
- **Number count.** How many trees are in each accession is recorded.
- **Size.** Dimensions of each plant are recorded. These are recorded in terms of height, spread and trunk girth for trees. Visual assessment techniques are

used for height measurements.

- **Condition.** Plant health and safety assessment, such as pests, diseases, plant pruning and training requirements are recorded. Additional information about street conditions, such as verge width, vandalism and underground services are often included in street tree inventories.
- **Age or maturity.** Approximate age or stage of maturity is recorded. Maturity scale is often juvenile, semi-mature, mature or senescent.
- **Location.** Conventional plans, or aerial maps are commonly used, or site descriptions may be recorded for each plant. The development of Geographic Information Systems (G.I.S.) is recognised as an important tool for tree location records, as well as tree canopy analysis (Dwyer & Miller, 1999; Wagner *et al.*, 1998).
- **Maintenance record.** Ongoing maintenance may be recorded.

Botanic gardens around the world use far more complex inventory systems. The Auckland Regional Botanic Garden plant record database includes 53 categories of information which may be viewed in **Appendix 3**. Examples of the types of information useful for scientific plant collections includes the provenance (source) of the plant material, its habit and environmental tolerances, flowering, ornamental performance and propagation data (Cross, 1990; Evans, 1990; Hammett, 1993).

The standardisation of plant inventory data such as the International Transfer Format (ITF), is important for world-wide communication between collection managers (Cullen *et al.*, 1987; Leadley *et al.*, 1993). Botanic gardens use this format to transfer data from their collection to a database maintained at the World Conservation Monitoring Centre in Cambridge. The BGCI - BASE is the most commonly used system by botanic gardens around the world (Leadley *et al.*, 1993).

Inventory data may be recorded and managed by a number of different information systems. First are staff knowledge and memory, which is easily updated, but not always easily retrievable. Manual systems are next. These include historical archives, and manually recorded species lists. Computer-based inventory systems include spreadsheets (e.g. Excel), databases (e.g.

Access, BGCI), and asset registers (National Asset Management Steering Group, 2000). Computer based systems have long been reported the most efficient methods (Bramwell *et al.*, 1987; Evans, 1990). They have the advantage of being readily revised, and can record large amounts of information easily. Maintenance planning and monitoring may be included with other records. When properly set up and updated regularly, inventories can ensure knowledge is not lost when individual managers move on from a collection. Regularly reviewed Inventories, alongside information on staff and public satisfaction and budget feedback, provide the monitoring necessary to assess the achievement of collection goals. Plant records systems used by Auckland tree collections will be analysed by type, and in comparison to the inventory criteria found in the literature.

New Zealand is reported to have few accessible biodiversity information systems outside of the Protected Natural Areas scheme. This inhibits the capacity for landscape managers to assess the significance of New Zealand plant collections (MOE, 2000). Oates (1993) reported no national or regional registers of amenity or garden plants, however a partial register of plant collections was published that year (Hammett, 1993). Oates himself published a list of native plant collections recently (Oates, 2000).

Asset registers are databases used primarily to record infrastructural assets, services, and hard landscape elements such as roads, lights and seats (National Asset Management Steering Group, 2000). Trees are included as an asset under the parks management category. However such registers are not designed for use as a plant inventory system. They include basic inventory data such as species, location, age, size and maintenance notes, but are not suitable for scientific plant collections where more extensive data such as provenance, etc. are important. Asset registers do however encourage managers to formalise some plant records which may otherwise be unavailable (National Asset Management Steering Group, 2000).

Inventories and national registers of are clearly shown to be essential plant collection management tools.

1.6.3 Assessment of Site Values

Once the site inventory has been completed, the next stage of assessment may be undertaken (Fabos and McGregor, 1979, MacKay, 1996). Landscape values assessment is a large field of research. There are many different approaches to assessing landscape values, which may be grouped into several broad categories. Daniel and Vining (1983) suggest five categories in their review: ecological (McHarg, 1969), formal aesthetic (Zube et al., 1975), psychophysical (Fabos and McGregor, 1979), psychological (Kaplan, 1985; Ulrich, 1983), and phenomenological approaches (Seamon, 1993). Other reviewers use different terminology, but all demonstrate a range of approaches, from very scientific analysis of the physical and ecological aspects of a site through to very personal, user-based interpretations. As a way of investigating landscape assessment methods in common use in New Zealand, seven landscape management plans were reviewed to identify which landscape values were assessed and by what methods. One rather aged plan for the Carter Reserve ((Department of Lands and Survey, 1978)) was included because of the unique way in which visual values were recorded.

Aspects of site inventory and values analysis found in the management plans reviewed included descriptions of legal ownership and classification, the statutory and council framework relating to the site, location, land uses, buildings and structures, access and circulation, soils, geology, hydrology, history and cultural heritage sites, biological significance, visual, vegetation and wildlife inventory. The specific content differed depending on the nature of particular sites.

The biological and historical values of the site and vegetation are assessed in a similar way in all the plans considered. For example the management plans for Carter Reserve (Department of Lands and Survey, 1978), Auckland Regional Botanic Gardens Management Plan (Auckland Regional Council, 1995), Western Springs (Auckland City, 1995) and Mt Albert-Owairaka (Auckland City Council, 2000) each contained vegetation species lists. A description of the ecological vegetation types present was included for each, with the exception of the highly modified Mt Albert-Owairaka (Auckland City Council, 2000) . Little analysis

of the significance of the species present was provided. The management plan for the Auckland Regional Botanic Garden (Auckland Regional Council, 1995) had one page describing its plant collections, and no analysis of significance is recorded in the 1995 edition. However the newly released management plan (Auckland Regional Council, 2001) has been greatly improved.

All the plans included a record of landform, climatic and soil data for the site. Historic values were recorded as descriptive text on the history of the site, sometimes including historic photographs or plans of locations of significant locations within the site. There was very little mention of the ecosystem services provided by the vegetation, in any of the management plans, and certainly no estimate of its economic value.

There was huge variability in the depth of evaluation of scenic or visual values. Western Springs Lakeside Park Management Plan (Auckland City, 1995) has a thorough analysis of visual values, using written text, photographs and plan view analysis diagrams. The Rotokare Scenic Reserve Draft Management Plan (Department of Conservation & South Taranaki District Council, 1993) has virtually no visual analysis, despite it being a scenic reserve. Mt Albert-Owairaka Management Plan (Auckland City, 2000) refers to the District Plan provisions to protect viewshafts from Auckland volcanic cones, but gives no analysis for Mt Albert specifically, except to recommend a vegetation policy to protect the distinctive landform of the cone. Carter Reserve Management Plan (Department of Lands and Survey, 1978) uses evocative perspective sketches to describe the visual values of the site.

A last example is management research done by MacKay (1996) for Eastwoodhill Arboretum. A thorough evaluation of site and collection values was carried out, including a detailed analysis of the collection's national significance, by comparing its genus collections with others around New Zealand, and its biological condition or health. This work provides a strong platform for strategic planning for Eastwoodhill, and contributes data for a national register of plant collections (MacKay, 2000).

In comparing the management plan values assessments, there is clear evidence that some have been based on psychological assessment models, such as Western Springs Lakeside Park Management Plan (Auckland City, 1995) and others are based on ecological models, such as Mt Abert-Owairaka Management Plan (Auckland City, 2000). The difference in approach may be seen in the structure of the reporting and in the language used to describe the sites. Psychological models provide a more diverse assessment of the site values which effect visitor perceptions such as spatial composition, visual character, access and visual progression. This type of assessment contributes to site design which takes the visitor into account as well as the plant collection.

Commentary

This preliminary investigation of management plans in New Zealand shows a range of site inventory and landscape values assessment methods. However most management plans reviewed used a scientific approach to landscape assessment rather than including human psychological preference factors. A model of best practice in terms of plant collection analysis of national significance was found in McKay's work for Eastwoodhill (1996). Another aspect of analysis evident in the process undertaken in the preparation of management plans for local authorities was the public consultation process required. This aspect of strategic planning is considered in the next section.

Community Input into Collection Management

Twenty-five years ago, public participation in land-use and landscape management issues in the United States was minimal, and public apathy was great (Jubenville & Twight, 1993). Today, the public is more aware of environmental issues. Public and territorial authority landscape managers are required by law to consult the affected public on strategic issues of land use, such as the establishment of a new botanic garden or park, or the preparation of a management plan for an existing plant collection.

Public involvement and ownership of collection goals has many positive spin-offs (Clark *et al.*, 1997; Jubenville & Twight, 1993):

- Community ownership of collection goals adds to community pride.
- Vandalism is reduced.
- Public education is enhanced on issues such as plant conservation.
- Expert advice or consultation may be offered to collection staff by members of the public.
- Volunteers may assist collection staff in achieving collection goals.
- Safety may be enhanced by increased community use.
- Funding may be increased due to increased community use and advocacy.
- Increased participation and use contribute to individual and community well-being (Kaplan, 1992).

Clearly, public input into the strategic planning for a plant collection is a desirable and worthwhile endeavour. Methods of establishing and maintaining public input into the strategic management of plant collections include:

- Community representation on management or advisory committees. Some collections have a community representative on their management committee. The value of this method of community depends largely on the interest, knowledge and networking abilities of the representative.
- Public Surveys for the collection of opinions on issues relating to strategic planning for a particular collection. This type of survey is less likely to result in high quality responses, without associated information and education programmes (Mackay, 1996).
- Collection representative on local community user-group committees. A variety of groups including volunteer, friends and community groups set up to support the goals and work of a plant collection can be a very valuable asset to plant collection managers. These types of groups provide a greater depth of public interaction than other methods.
- Input into management plan. Public comment is often invited through local newspapers when management plans are prepared.
- Workshops are another useful tool for involving the public and staff, in collection goal setting. This method was used by Mackay (1996) at Eastwoodhill Arboretum.

- Public hearings may be called for specific planning issues where public concern is very strong.

Auckland tree collection managers were asked how public input is integrated into their management planning. It was expected that some or all of the methods above would be reported. Public input on operational issues is covered in a later section.

It is clear that the skills and knowledge of the person carrying out the research for strategic management will influence the content and usefulness of the analysis. Some will show a strong biological or scientific base for their value framework, while others have a design view point. Still others find the cultural significance to be the most important and interesting. A balanced tension between these three should bring a holistic approach in examining tree management strategies in this research topic, similar to that advised by Swaffield (1993) and Kirby (1986) for wider landscape assessment and management issues. The Institute of Leisure and Amenity Management in New Zealand considers that the present inability to quantify the benefits or values of trees and landscapes, except in abstract terms, contributes to the low prioritisation and funding of landscape preservation by some territorial authorities, and continued pressure from other development options (Morgan, 1991). Recreation value has one of the more easily measurable indicators in visitor numbers. Collections such as the Auckland Regional Botanic Gardens list recreation as their top goal for the collection above scientific goals in recognition of the need to attract Auckland Regional Authority funding (Auckland Regional Council, 2001).

Operational Management

Once the strategic position is established based on the site values, landscape goals and plant collection inventory, the operational plan may be developed.

1.6.4 Landscape Management Plans

Landscape management plans provide a written record of the collection strategic position, and of the operational policies and implementation

strategies. The use of management plans and inventories assists in ensuring maximised benefit from limited funds (Doherty *et al.*, 2000). There is a legislative obligation on managers of publicly owned parks and reserves to have an operative management plan in New Zealand. Bromley (1994, p38) states that:

all management plans follow the same basic format: setting aims, survey, analysis, statement of objectives, a list of management prescriptions and a monitoring process.

It is essential that management plans are reviewed regularly to assess their effectiveness in producing the output objectives (Bromley, 1994; Hitchmough, 1994). Morgan (1991) describes the model for preparing what is called a 'strategy' document used by ILAM in Britain. It also includes the survey, analysis, plan (setting objectives and targets), monitor and review phases and recognises the cycling necessary from planning to further survey and analysis. The general sequence of a management plan relates closely to, and may have contributed to MacKay's (1996) plant collection management model, however the distinction between strategic and operational management is not clear in the management plan model. In some sense, a complete separation of the strategic and operational phases is an artificial construct. This is due to the necessity of 'cycling' to occur between the two phases. When any change occurs in the system, and/or new information is available, strategic and operational analysis must occur. This cycling process of information and analysis links the two systems. An example might be a new local authority objective and policy to establish a new arboretum in the city. Tree collection managers in that city gaining this information about the external context would be well advised to analyse the opportunities such a policy may provide for their collection, should it provide a suitable site. This analysis will flow through both strategic and operational analysis, and may produce decisions that affect the strategic position and therefore every other level of collection management. Because of the nature of management plans and strategy documents they may be used in a strategic sense to provide a basic model of management where no other is explicit. There is certainly a need for a widely accepted and used landscape management model.

There has been a slow positive trend towards increased use of tree inventories and management plans in the United States of America, over the last twenty years. A nationwide study in 1980, found that only 50% of municipal tree managers identified their management programme as systematic, and that only 22% knew with certainty the number of trees under their jurisdiction (Kielbaso *et al.*, 1982). A more recent study found that 78% of managers surveyed reported spending money on tree inventories, yet only 66% could provide an estimate of the number of trees under their jurisdiction (Tschantz & Sacamano, 1995). A study in Massachusetts (Doherty *et al.*, 2000) found that only 23% of tree managers could report the use of a street tree inventory. 80-85% of cities were found to have no tree management plan in 1986, but no follow-up has been conducted to check on progress. The Massachusetts study found only 14% had a documented management plan, which is in line with the nation wide average (Doherty *et al.*, 2000). In New Zealand, Mackay (1996), found that only three out of 40 tree collection managers could provide a tree list in 1990. Only two used computers to produce the list and one used a database. The results of this study will show how many Auckland managers use different types of information systems and management plans.

A comprehensive collection management plan documents long term goals, documentation of the character and values of the collection including a plant inventory, along with the operational planning to allow the collection goals to be met (Grey, 1996).

Figure 1.7 from Bromley (1994) is a summary of the typical template for a management plan from the British Countryside Commission (1986). Cobham (1990) and Hitchmough (1994) both refer to parts of this template published by Bromley (1994), which indicates acceptance of the template as a standard in Britain.

A similar cycle of Management Planning is proposed by Morgan (1991) for the Institute of Leisure and Amenity Management (ILAM) in Britain. However

Set objectives / Aims	Survey resources
Broad statement of the policies which will underlie the management of the land, indicating the balance to be achieved between the various land uses and interests.	A comprehensive record of what is present on the land and how it is managed, forming a baseline for the analysis and statement of objectives.
Analysis	
An examination of the options for management of the land and the interrelationship between existing and potential land uses. Potential problems and conflicts are identified and the various interests are weighed against one another. From the decisions reached, objectives are formulated.	
Management objectives	
Specific statements on how the aims are to be pursued in the longer term – at a general level; in the shorter term – within each area of land use and interest	
Management prescription	
An overview of the work required and resources needed to achieve objectives.	
Implementation Plan – including design	
Details of the integrated action programme drawn up from the overall requirement of work to be done, and by which the management objectives will be achieved. Yearly programmes are developed at this stage.	
Monitoring and Review	
A record and assessment of management achievements together with proposals for periodic review.	

Figure 1.7 Outline of a Typical Management Plan (Bromley, 1994).

instead of setting broad aims at the beginning of the process, this model starts with the survey and analysis, and allows the analysis to generate the aims and objectives. This is a more inductive research process. Rather than starting with a hypothesis for testing, it allows the survey data to suggest suitable aims. In some cases the site will have recently been given some status title such as nature reserve. This legal designation prefaces the management planning cycle, and gives an immediate focus or hypothetical aim. In this case Bromley's (1994) template is an accurate reflection of the steps in the process. The team considering legal designations for open space may start with a clean slate, and consider the site values as raw data which they analyse and then formulate broad aims for management. The templates therefore describe different site scenarios. Bromley's template suits sites already analysed to some extent, while the ILAM process is more suitable for new sites.

There is a strong correlation between the process of writing a management plan and the process of designing a landscape. Both processes initially collect data about the site involved and the cultural vision and goals. Next there is an analysis phase, followed by broad objective setting. The designer may use functional analysis and concept drawings to represent the findings, whereas the manager uses a written form of representation. Development plans and implementation programmes follow in both cases, with monitoring or review being an important feedback-loop for both.

The link between these common planning or decision-making processes for management and design, should provide a solid basis for communication between landscape managers and designers (Swaffield, 1993). Professionals in these disciplines are analysing the same data. The areas they must have a good understanding of include the importance of the customer and requirements of the client, the legislative and political context, budgeting and implementation methods, and holistic understanding of landscape values. These comprise the 'knowledge' and 'context' components of the management models. Management and design planning processes work in parallel to achieve the management goals appropriate for open space and plant collections.

Monitoring

To manage any biological resource alongside human use, as most tree collection managers are doing, consideration of the effects of the human use on the biological resource are crucial to the ongoing survival of the resource. Data gathering on biological resources such as plant record systems forms the basis of environmental monitoring (Ingle & Hilton, 1997). Models such as resource carrying capacity provide tools to analyse human-use impacts. Visitor satisfaction measures are a form of cultural monitoring.

1.6.5 Plant Records

For a plant collection where species diversity is a clear goal, plant inventories or record systems provide the foundational monitoring tool. Plant record systems reviewed above may therefore be seen to be essential at the strategic, operational and monitoring phases of plant collection management.

Plant inventories implemented at the strategic planning stage are ideally able to be updated to provide ongoing operational information such as tree maintenance and replanting records, and also monitoring information such as plant health data, species acquisition progress and maturity spread percentages.

1.6.6 Resource Carrying Capacity (RCC) Monitoring

The concept of 'Resource Carrying Capacity' (RCC) has been developed by various authors in different contexts. Resource carrying capacity is the level of use a site can sustain before unacceptable damage occurs (Jubenville & Twight, 1993). Fabos (1979) recommends using the a similar concept of ecological 'carrying capacity' as a guiding principle for the evaluation of its potential for urban expansion.

A site with rich landscape values, lots of visitors and a well managed service infrastructure, also requires monitoring in terms of the manager assessing what level of visitors damage the site. Jubenville and Twight (1993, p40)

consider four different aspects of carrying capacity:

- 1. Physical Carrying Capacity-** the number of people a site can accommodate without queuing.
- 2. Facility-** the number of people a facility can accommodate.
- 3. Social-** the number of people a site can sustain and still maintain a quality recreational experience.
- 4. Ecological-** the impact of recreational use on the ecology.

Their analysis concludes that each must be taken into account, but that it is very problematic to state a magical cut-off limit for site use, but more useful to consider site use as an equilibrium of factors, where management actions are planned in advance to deal with changes or damage which are outside an identified acceptable range. This is known as the **Limits of Acceptable Change (LAC)** (Hendee *et al.*, 1990).

The RCC model tries to set maximum loadings for each of these elements whereas the LAC model sets indicators of acceptable range values for each element. Jubenville and Twight (1993) note that the setting of limits or acceptable ranges of impact are both subject to the professional judgement of the landscape manager and must be constantly reviewed and fine tuned to achieve an appropriate equilibrium of use patterns and management interventions. The concept of LAC relates well to the concept of ecological sustainability. The landscape manager's approach to a site will depend on the site values, goals and carrying capacity. Both RCC and LAC are tools for monitoring the effect of human use on a site. Whether the site is a national park, eco-tourism site, tree collection or sports ground, the principle of monitoring the effect of the human use on biological resource inputs in achieving the various outputs obtained allows managers to achieve the feedback loop to their strategic planning process.

There is little evidence to suggest that either RCC or LAC is widely used as a formal landscape management tool in New Zealand. There is a reference to the

principles of RCC as appropriate for determining the number of visitors a tourist site can accommodate in their guideline for development of National Parks and Protected Areas (World Tourism Organisation and United Nations Environmental Programme, 1992).

The Protected Natural Areas Programme and State of the Environment reporting are environmental monitoring regimes implemented under the RMA for the strategic management of indigenous species and ecosystems in New Zealand (Ingle & Hilton, 1997). No national body is charged with monitoring exotic biodiversity, except in the case of biosecurity control of national borders. The Environmental Risk Management Authority (ERMA New Zealand), was established under the Hazardous Substances and New Organisms Act (HSNO)1996. The Authority considers applications for the importation of new and genetically modified organisms to the country, and has considered 182 applications for imports of new of genetically modified organisms/substances since 1996. ERMA controls the importation of plants and prohibits species not already present in New Zealand, unless thorough (lengthy and expensive) administration and monitoring procedures are followed (<http://www.ermanz.govt.nz>, accessed 17/11/01). These procedures are perceived as a barrier to the importation of new plant species by plant breeders and nurseries (Hammett, 2000). Invasive plants already established in the country, listed as National Surveillance Plant Pests, are monitored under the Biosecurity Act (1993) by regional authorities (<http://www.arc.govt.nz>, accessed 14/12/01). Monitoring for the invasive or hybridising potential of exotic plants is indeed an important function carried out by ERMA.

High use parks in central Auckland have been given a special designation of 'premier park' to indicate the necessity for a different operational strategy due to the high public use. Wider footpaths, more frequent rubbish removal and lake maintenance demonstrate operational responses to resource impact monitoring at Western Springs Park.

However no monitoring of exotic species is undertaken for strategic national

planning of the positive values of having a diverse range of species in New Zealand, as highlighted in the first part of this chapter. This research survey shows that monitoring of urban amenity trees is achieved by territorial authorities in district plans, schedules of notable trees, and in park management plans. Government departments such as DOC and the Historic Places Trust also maintain species lists in management plans for sites under their jurisdiction. These examples demonstrate a piecemeal approach to the monitoring of exotic flora in New Zealand.

1.6.7 Monitoring Visitor Satisfaction

Jubenville & Twight (1993) suggest methods of establishing and encouraging community input and interest in recreation and planning, which can be adapted to plant collection management. Some of the methods are appropriate for use in the strategic planning stage (noted earlier), while others relate to the monitoring stage of management below:

- Comments to staff. This often happens informally when visitors to a plant collection talk with collection staff. Operational issues and problems are commonly passed on to managers in this way.
- Public Satisfaction Surveys. Written surveys may be used to collect evaluations of public satisfaction with the collection services and facilities. This can give useful feedback for collection managers on whether long term and operational goals are being met. Skill is required to prepare effective questionnaires.
- Collection representative on local community user groups committees. A variety of groups including volunteer, friends and community groups set up to support the goals and work of a plant collection can be a very valuable asset to plant collection managers. Information centres, shops, seminars, visits and mailouts to members are all examples of valuable work sometimes provided by these groups. These types of groups provide a greater depth of public interaction than other methods.
- Input into management plan. Public comment is often invited through local newspapers when management plans are prepared.
- Workshops are another useful tool for involving the public and staff, in

collection goal setting. This method was used by Mackay (1996) at Eastwoodhill Arboretum.

- Public hearings may be called for specific issues where public concern is very strong.

If a collection manager wishes to gain public support for the collection, educational information about the collection must be provided to users, in terms of the interest of those users. Research by Cantrill (1972) over ten years established some interesting insights into stimulating public interest in landscape management. He found that educational information was very important in stimulating public opinion, interest and concern. Heavy scientific jargon about conservation of rare and endangered species may not be of interest to the general public, and may therefore not stimulate public support or satisfaction. Without background information, members of the public will respond to issues on the basis of their lack of knowledge, rather than as an informed participant (Cantrill, 1972). Brochures, maps, web sites, identification guides, tree walks and guided rambles are some of the methods found to be used by tree collection managers to provide this background information to the public in Auckland. It would be interesting to assess the change in public satisfaction levels before and after the introduction of public information strategies. How then does the manager integrate the public input in management planning? Analysis of public input is a summary of the nature, content and extent of the comments received (Clark & Stankey, 1976). Evaluation then interprets the validity and significance of the public input. This evaluation must be placed against factors such as legal responsibilities, financial, ecological and resource constraints and then integrated into the management planning cycle for the collection.

Commentary

Strategic, operational and monitoring phases of management have been described, and appropriate tools for each phase discussed. Each has been shown to be a valuable part of the management system for plant collections. Analysis of Auckland tree collections management systems will be reported in Chapter 4.

1.7 Management Context: Legislation and Policy

1.7.0 Introduction

In order to gain an understanding of the external context in which tree collection management operates, this section reviews the legislative and policy framework in New Zealand and Auckland respectively. New Zealand's environmental legislation aims to reflect societal values in protecting aspects of the natural and cultural environment. It is interpreted by the courts from two sources: one which is laid down by statute, usually by Parliament; and the other known as case law which is built up from principles developed in the courts over time. This section provides a discussion on statutes and policy, which relate to the management of tree collections in this study.

1.7.1 National Legislation

Conservation Act 1987

The Conservation Act (1987) promotes the conservation of natural and historic resources, and establishes a Department of Conservation (DOC) to implement that aim. The functions of DOC include managing land and freshwater held under the Act for conservation purposes. Tourism and conservation education are also under their management. DOC must also prepare policy statements, management strategies and management plans for its land and resources and review these as necessary.

The Department of Conservation looks after about one third of New Zealand's land area protected for scenic, scientific, recreational, historic or cultural reasons. New Zealand has a legacy of National Parks and Protected Natural Areas, which safeguard representative ecosystem and landscape types.

DOC land comes under several categories:

- Conservation Parks where public recreation is allowed (conservation)
- Wilderness Areas where public access is excluded (preservation)
- Ecological areas
- Sanctuary areas

- Watercourse areas
- Wildlife management areas
- Freshwater marginal strips

DOC land tends to be natural areas, most often areas of native vegetation. The DOC tree collection considered in this research is Kawau Island, which has significant historic value as the site of Governor Grey's famous residence and tree collection. There is a very thorough management plan for that collection.

Reserves Act 1977

The purpose of this Act is to make further provision for acquisition, control, management, maintenance, preservation, development, and use of public reserves, and to make provision for public access to the coastline and the countryside.

Reserve categories include:

- Reserve
- Recreation reserve
- Scenic reserve
- Nature Reserve
- Scientific reserves
- Government purpose reserves
- Local purpose reserves

The park system in New Zealand started with the British model of city squares, commons and countryside, but has been more strongly influenced by American landscape architectural park theory. The American model has come about as a result of Frederick Law Olmstead's vision for a park system throughout the country (Bella, 1987). National Parks were established as a strategic framework, and a network of connected parks were planned for American cities across the continent. Large parklands were connected by boulevards, trails and greenbelts. The idea of a linked system makes the parks more useable, accessible and visible, has left a great legacy of green space in American cities to the present day (Bella, 1987, Arnold, 1993).

The British Institute of Leisure and Amenity Management (ILAM), cites public parks as the most popular and accessible recreation facility in Britain (Morgan, 1991). Auckland Regional Council and District Council's have established a network of Parks and Reserves under the Reserves Act, which are well used and valued by ratepayers (Auckland City, 1999b). Three million visits are made to the regional parks each year, which covered 11,000 ha in 15 different locations in 1988 (Auckland Regional Authority, 1988), but this year cover 37,038 ha in 22 different locations (<http://www.arc.govt.nz>, accessed 14/12/01).

All the parks in this study must fall into one these categories, however it is unclear which category they fit into. Western Springs Park is described as a premier park in its management plan (Auckland City, 1995). The plan itself states that the park has no reserve status, but says the plan presented follows the processes and obligations prescribed for management plans under the Act. Auckland City have recognised and categorised its special scenic and recreational values in its 'premier' designation. The now redundant Local Government Act (1974), does not clarify the classification of parks either. Another example of the lack of clarity of reserve classification is Waikumete Cemetery. Recently a Draft Management Plan (Waitakere City Council, 1999) was prepared with input from the 'Friends of Waikumete Cemetery' group, because they felt the need for a more co-ordinated approach to the management of the cemetery. However now it seems that there was once a reserve status gazetted for the Cemetery that means DOC must prepare the management plan.

One further example is the Auckland Botanic Garden. This land is managed by the Auckland Regional Council. There is no official category for botanic gardens and it is not classified as a Regional Park either. This is certainly an area for further research.

National Parks Act 1980

The National Parks system has been established in more than one hundred countries around the world. There are more than one thousand parks, covering about two percent of the earth's surface (Bella, 1987).

The United Nations standard for national parks (1975), sets a dual and therefore conflicting goal of preservation and human recreational use.

The United States and Canada have long traditions of National Parks (Bella, 1987). Yellowstone was the first National Park, established in 1872 (MacEwen & MacEwen, 1982). New Zealand established its first National Park in 1887 at Tongariro and has a well established system of Protected Natural Areas (Department of Conservation, 1988).

Britain was slower to follow the lead, as it had existing models of protection. The Lakes District was protected in 1885 on the founding of the National Trust. It was not until 1936 that the Committee for National Parks was established (MacEwen & MacEwen, 1982).

The conflict between landscape management goals of preservation and human use is well documented in National Parks literature. MacEwen & MacEwen (1982), document the incompatibility of government policy on high impact human use activities, such as mining and military training, with conservation of natural areas. Similar problems of resource exploitation are documented by Bella (1987) in the Canadian context, but political conflicts and budget cuts are additional barriers which have hampered the conservation goals of National Parks in that country.

A guideline for the development of National Parks and Protected Areas for Tourism was prepared in 1992, as a joint publication of the World Tourism Organisation and the United Nations Environmental Programme (1992). It highlights the pressures of high visitor numbers on fragile ecosystems, and proposes the use of the Carrying Capacity concept covered in section 1.6.6. The Limits of Acceptable Change concept is not mentioned. Political support of tourism is mentioned, along with the lack of social and environmental assessment requirements in many countries.

Historic Places Act 1993

The Historic Places Trust, although only formed in 1980 under the previous Act (Historic Places Act, 1980), has its historical roots with a group of societies set up in the early 1900s, when there was a surge of concern for the environment. Scenery Preservation societies of the time identified and recorded data about monuments and special lands. New Zealand Forest and Bird Society and Royal New Zealand Institute of Horticulture were part of the same movement (John Adam, Auckland Garden History Society, personal communication, October 1999).

The Historic Place's Trust has the functions of identifying, registering, protecting and conserving the historical and cultural heritage of New Zealand.

Compared with the Australian system of historic site legislation and management, the New Zealand Historic Places Trust lacks legislative teeth and sufficient funding. It concentrates on buildings, and gardens are only considered significant in relation to the building they surround (John Hawker, Heritage Victoria, personal communication, March 2000). This view is supported by viewing the educational publications put out by the Historic Places Trust (Wilson, 1987), depicting their interpretation of the Historic Places in New Zealand. Landscapes of historic significance do feature, in relation to Maori settlement, special events and spiritual significance. However gardens and special trees or vegetation are conspicuously absent. The editor makes specific reference to criticisms of an earlier publication in which only buildings were featured. The Trust still does not seem to have a broad or holistic view of the values it is to protect.

In contrast, Heritage Victoria is the Australian government agency empowered to implement the Heritage Act of 1995 which protects places and objects including buildings, trees gardens, cemeteries etc. They received a budget of 16 million dollars over four years to establish the Victorian Heritage register of heritage significance, which legally protects the registered items or places and can assist with funding for conservation works (Heritage Victoria, 1999). This is

certainly a superior model to the New Zealand one, and to most of the other Australian states.

This study includes data from two Historic Places, Highwic House and Alberton House. A vegetation survey has been done for both properties, but only Highwic house has a management plan which includes management of the garden. The Act secures the title for the land but does not always protect the trees or make provision for their management.

Queen Elizabeth the Second Trust Act 1977 (QEII)

The Queen Elizabeth the 2nd Trust Act (1977) establishes a national Trust to encourage and promote the provision, protection and enhancement of open space for the enjoyment of the people of New Zealand. 'Provision' is a landscape goal not previously discussed in the last section. This goal fits within the preservation group of goals. It is not creation of new resources so much as setting aside land for a particular purpose.

The Trust has the function of reviewing the adequacy and accessibility of open space, formulating relevant policy and identifying and classifying potential reserves and recreation areas as being of national, regional, local or special significance. Surely this is then the body to make proposals for open space classification clarification.

The following information was sourced from the QEII website (<http://www.nationaltrust.org.nz>, accessed 19/12/01).

The Queen Elizabeth the Second National Trust has registered over 1360 Open Space covenants, over 50,000 hectares, in its 20+ year history. Included in those covenants are a large number of natural areas, particularly remnant forest sites, but there are several examples of gardens which have been covenanted. Tupare in New Plymouth and Eastwoodhill on the East Cape both have protection under the Trust.

Many landowners have landscape features or areas of open space on their

properties which they do not wish to see destroyed by clearing, buildings, powerlines, subdivision, or thoughtless land use. It is possible to sell or donate land to the Crown or to a local authority as a reserve, but many landowners want to protect their land and continue to own it while ensuring it remains for future generations to enjoy.

This can be achieved by an Open Space Covenant. An Open Space Covenant is a legal agreement between a landowner and the National Trust to protect an area of open space. Land subject to a covenant does not become the property of the National Trust, rather the landowner retains title to the land. An Open Space Covenant is usually granted in perpetuity. Sometimes it is for a specified time, such as the lifetime of a stand of trees. Covenants are registered against the land title and are binding, not only on the present landowner or leaseholder, but all subsequent landowners or leaseholders.

Generally, a contribution towards the costs of establishing covenants and protected private areas is made by the National Trust. Legal costs, in particular survey and documentation, are usually met, and fencing costs may be partially or wholly met depending on the situation. Local authorities also have the discretion to offer rates relief on the protected areas as part of their contribution to nature conservation. Funding is limited and covenant projects are prioritised.

Management of covenanted land remains with the landowner or leaseholder in accordance with the terms negotiated for each covenant. Dependent on resources available to it the National Trust may offer management advice, assistance, and specialist services such as revegetation advice, when needed.

The present government has allocated an extra \$37million to support the Biodiversity Strategy over the next five years. The Nature Heritage Fund, Nga Whenua Rahi and the QEII Trust will be the agencies to allocate and manage these funds.

Local Government Act 1974

This Act empowers local government to provide appropriate levels of local government such as delivering facilities and services on behalf of central government, for the good of local communities.

Local government is structured first as regions with regional councils, and secondly under territorial authorities (either city or district councils). These councils are deemed body corporates and can operate independently in the business realm. Functions of regional councils are then listed as deemed by various other statutes, including the Resource Management Act (1991).

Regional councils and territorial authorities are required to prepare and adopt regional and district plans. These are spelt out in the Resource Management Act but there is a special section in the Local Government Act requiring Auckland Regional Council to prepare a regional growth strategy and to set up a forum group to oversee the strategy.

Resource Management Act 1991 (RMA)

The Resource Management Act (1991) supersedes the Town and Country Act (1977). The purpose of the Act is 'sustainable management'. It seeks to protect landscape in the broadest sense from degradation or harm. It provides for an integrated approach to land, sea, coastline, air and freshwater, with an emphasis on the ecological 'effects' of development rather than the activities themselves. It has a concern for Maori land values based on the principles of the Treaty of Waitangi.

Sustainable management is defined by the Act (section 5(2)) as:

managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while –

- Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;
- and;

- Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The precise meaning of the sustainable management concept will evolve through case law from the Planning Tribunal over time. A major issue to be defined is whether the human or other ecologies will be given priority under law. There is some evidence to suggest that ecological values are being given priority over human development in the courts (Chisholm & Edmonds, 1994).

The recent '*Bio-What?*' Report (Ministry for the Environment, 2000) contends that biodiversity is a good measure of sustainability performance, as the two are co-dependent. Declining biodiversity in New Zealand is highlighted as a clear sign that additional effort and funding needs to be invested in sustainable environmental planning and management.

Section 7, headed 'other matters, (as opposed to 'matters of national importance' in Section 6, states that all persons exercising functions shall have particular regard to ... c) the maintenance and enhancement of 'amenity values'.

The definition given for this term in Section 1 (p139) is:

those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

The RMA represents a new approach to regulating activities. Where the emphasis is on the 'effects' of activities and not on the activities themselves.

The Act defines 'effects' (section 3) to include:

- (a) Any positive or adverse effect; and
- (b) Any temporary or permanent effect; and
- (c) Any past, present, or future effect; and

(d) Any cumulative effect which arises over time or in combination with other effects - regardless of the scale, intensity, duration or frequency of the effect, and also includes -

(e) Any potential effect of high probability; and any potential effect of low probability which has a high potential impact.

The RMA is a major shift in legislative focus which may well lead the world into effects-based resource planning (Brown, 1997). The Ministry for the Environment commissioned a series of resource booklets, following the RMA becoming operational, acknowledging the need for education for staff working in the resource management arena. Roper-Lindsay (1992) contributed to this series and highlighted the need for major up-skilling on the part of Local Authority staff and recommended recruitment of specialist ecologist staff for some areas. This supports the case for recognition and training of Landscape Scientists in New Zealand identified in section 1.5.2.

The RMA provides wide opportunities for innovation in the preparation of statutory documents by local authorities, although they are required to act within the scope of the authority conferred on them (Chisholm & Edmonds, 1994).

Regional Councils are charged with preparing a Regional Policy Statement which 'provides an overview of resource management issues of the region and the policies and methods to achieve integrated management'. The detail or fleshing out of the meaning of the RMA goals for their region is documented in the Regional plan and the local Territorial authority's District Plan.

Regional plans and District Plans must have regard to:

- Management plans and strategies prepared under other Acts
- Planning documents from iwi authorities
- The Historic Places register

Zonneveld and Forman (1990) highlight the problems of implementing the concept of sustainability on the local scale, where control of external influences is limited. They conclude that landscape planners working at regional and district scales are most able to affect sustainable approaches to

landscape. This conclusion supports the case for viewing urban vegetation collectively as the Urban Forest, in order to be better able to achieve a sustainable landscape and vegetation management strategy.

The process of achieving operational Regional Plans is still occurring around the country and not without problems. The increased level of public involvement in the planning process has proved a difficult process for the Far North District Council and at Banks Peninsula (Brown, 1997).

Section 316 (3) enables application to the Planning Tribunal for suspension of any part of a Regional Policy Statement or Regional Plan, where the Tribunal determines that any one or more of the requirements of the First Schedule have not been observed by that plan. This application can only be made for three months after a policy statement or plan becomes operative.

Case law in NZ has recently thrown up a significant decision in resource consent law. Dickey and Green (1998) report that the environment court gave consent for a development which had previously been refused consent on planning grounds. The consent was granted due to Dennis Scott's design for the development, which the court deemed 'a vast improvement to the landscape qualities' of the site (Dickey and Green, 1998, p. 31). The article quotes the court's ruling, "if (council) rules seek to prevent a result encouraged by the Act then the council should certainly redress the omission".

The ministerial review of the RMA by a reference group led by McShane (1998), proposed amendments to reduce the visual or amenity value weighting for landscape assessment. It is seen by many in the landscape architectural profession as a retrograde step to the legislation, and many submissions were made on the proposed amendments. The Ministry for the Environment's review (1998) of the submissions has been prepared, but the final outcome is still under deliberation.

In 1995, a private member's bill was proposed, titled 'The Urban Trees Bill 1995' (Williams, 1997). It proposed to amend section 6 of the RMA (1991) by making

the protection, maintenance and conservation of the tree cover in any urban area a matter of national importance. It also directed councils to make rules to protect trees generally, or because of size, species, location or intrinsic value; or require that any work on a tree be undertaken pursuant to a resource consent. This bill has a strong protectionist flavour, which is not consistent with the tenor of the RMA, and as such it is not surprising to find that there is no record of this bill being passed by Parliament.

New Zealand's Biodiversity Strategy 2000

The New Zealand Biodiversity Strategy (Department of Conservation and Ministry for the Environment, 2000) has been prepared in response to the Rio Earth Summit (Grubb *et al.*, 1992). It aims to maintain, restore, identify, protect, conserve and manage resources such as natural habitats, indigenous species and genetic resources. The strategy does not aim to deal with urban habitats or exotic species. Chapter 15 of Agenda 21 calls for the development of such national strategies (Grubb *et al.*, 1992). It is interesting that the description of such national strategies in Agenda 21 calls for national strategies for the conservation of biological diversity and the sustainable use of biological resources, but does not focus on indigenous species. Submissions were made in Auckland, at the draft stage of the strategy, recommending the inclusion of a wider interpretation of New Zealand's biodiversity, but no additions have been made to the final document. The strategy offers little comment or strategic plan for urban forest or tree collection management.

Commentary

New Zealand environmental legislation aims to reflect society's values in managing aspects of New Zealand's natural and cultural environment. The statutes commonly have stated goals of conservation, protection, management or preservation and empower particular agencies to implement the law, e.g. the Department of Conservation to implement its aim of conservation of natural and historic resources.

Legislation sets out the broad land management goals. It then provides a

framework of categories of land use types and establishes a set of criteria for the way each category is to be managed. There is evidence to suggest a lack of clarity in the way parks and reserves under Regional and Territorial Authorities classify their parks. Some of the park categories require a management plan to be prepared, which identify the values of the landscape and set out appropriate specific goals for its management, but there is only a haphazard selection of management plans available for parks in the Auckland region. Waitakere City council do not have a copy of park management plans available in all their libraries. None of the statutes describe the contents of a management plan. Presumably practitioners rely on the available literature and the education institutes for landscape architects and landscape managers. Examination of management plans indicates a reasonably standard approach to their preparation, although there is variability in the resource analysis. Some plans do not cover visual resources or values.

1.7.2 Comparison with Overseas Legislation

In order to put New Zealand legislation in perspective, a brief overview of British, European, and American legislation is included below. The British Legal system is summarised by Bromley (1994). It is based upon two sources of legislation: one which is laid down by statute, usually by Parliament; and case law built up from principles developed in the courts. Case law has developed from local customs, feudal systems or traditions.

In Britain the Countryside Act (1968) established separate Countryside Commissions for England, Scotland and Wales. It covers development of land, safety of people on the land, and with the National Parks Act (1996, p. 3), allows for setting aside of land for conservation of wildlife, flora and representative landscape types. Its stated intent is that:

in the exercise of their functions relating to land under any enactment, every Minister, government department and public body shall have regard to the desirability of conserving the natural beauty and amenity of the countryside.

As Bromley (1994) reflects, this is indeed a vague concept and is open to debate in the form of test cases in the courts. This act is quite different to the New Zealand Resource Management Act (1991) in its aim and focus on visual value, with no mention of 'sustainable management' of biological resources, or of the 'effects' based analysis of any proposed development.

The Town and Country Planning Act revision in 1971, set regulations regarding particular development activities in different planning zones, to avoid random development patterns. Holliday (1987, 1990), calls for a revision of British law relating to the countryside, to better reflect the modern world in which it operates.

European law is having a stronger influence on Britain due to integration of the European community on many levels (Bromley, 1994). Nature conservation at both a species and representative landscape area level is increasingly emphasised, with tighter controls on development being imposed. Environmental Impact Assessment reports are part of development approval, in many cases requiring analysis of the development well beyond the property boundaries. This ecological effects consideration is possibly what the RMA is modelled on.

American law has more tiers of controlling bodies than the European model. The federal government sets the law and policies. The state level also sets laws, then there is the equivalent of our local bodies (Zube *et al.*, 1975). There is a wide variety of approaches to land use policy and control at the state level. States such as Vermont and Maine have quite stringent policies, with aesthetics being a major factor in the review of applications for permits. This quote from Maine state law, in Zube *et al.*, (1975, p. viii), shows the weight put on visual qualities:

no adverse effect on natural environments. The proposed development has made adequate provision for fitting itself harmoniously into the existing natural environment and will not adversely affect existing uses, scenic character, natural resources or property values in the municipality or adjoining municipalities.

National government organisations manage various aspects of landscape, such as the National Parks have clear policies (Lemons, 1987), in a similar way to the New Zealand Department of Conservation managing national parks. Botanic gardens are part of the state and national government management system, with national standards set down as to the components required for different types of botanic gardens (Given, 1994). In this regard New Zealand is different. Local authorities manage botanic gardens and there is little national policy or control.

Commentary

This section summarises the legal framework in which a landscape manager operates in New Zealand, and briefly contrasts aspects of this with the British and American systems, recognising similarities to developments in European legislation.

The key legislative issues in relation to this project are the manner in which provision, management and protection of biological resources in general, and specifically those in urban human use areas is applied. The three most important statutes in this regard are:

The Resource Management Act (1991) provides more ecological focus to the management of environmental resources than previous legislation, but less regulation in terms of specified land use planning. Globalisation of NZ resource management legislation is likely to be seen in the future. Recent moves to further limit the visual and amenity values recognised under the Act will reduce further the links to the values which British and American law is based on, and which provides some, if limited directive for the protection of urban vegetation such as tree collections.

The Queen Elizabeth II Trust Act provides for the protection of a broad range of open space for the public good. This may include plant collections.

The Reserves Act is the other statute that enables the provision of open space as parks or reserves, depending on landscape values assessment. Both parks

and reserves designations have associated management policies such as the preparation and implementation of a management plan. The system of parks and reserves classification is not clear for several parks considered in this project. The classification system is in need of revision. Botanic gardens do not even have a specific classification.

New Zealand's resource management legislation has an ecological approach to consider broader off-site effects of development but has less specific regulations regarding development. It aims to promote 'sustainable' management practices and several landscape management goals reviewed. British law places higher value on amenity values than New Zealand law, which therefore protects the human use values of urban vegetation more effectively than the RMA. It is no surprise that the proposed private members Urban Trees bill was not passed. American law has a more complex and managed system of parks and botanic gardens. Such a complex system of administration may not be advisable for a small country such as New Zealand, but the strategic national planning framework it provides in America is lacking in New Zealand. State control does not necessarily provide a better outcome than voluntary efforts e.g. the British National Trust is not state funded and yet manages to protect, and make many historic gardens accessible to the public (Reece, 1992). In New Zealand this would be difficult however because of New Zealand's small population base in relation to gate sales funding. State input does usually provide some level of funding or support, which is essential for the maintenance of voluntary initiatives, but often difficult to achieve. The National Trust model supports the QEII Trust's initiative to covenant significant private garden plant collections.

1.7.3 Territorial Authority Policy

As already covered, Territorial Land Authorities such as Regional, District and City councils are empowered to implement the Local Government Act (1974). The specifics of this control for trees is covered in the Regional and District Plans which each Authority must prepare. In the case of parks, management plans are prepared to analyse the site landscape values and to propose goals

for the management of the site. The next section compares the basic tree policy aims and the tree protection practices of the regional council and the four city councils in central Auckland.

Auckland Regional Council

The Auckland Regional Authority manages 22 regional parks, covering 37,000 hectares (<http://www.arc.govt.nz>, accessed 14/12/01), shown on the map

Appendix 4. The regional council's goals for its parks concentrate on providing recreational opportunities amongst a variety of landscape types. This includes coastal areas, farmland and native bush, and the Regional Botanic Garden. The Botanic Garden stands out as the most highly designed and managed landscape, with very different site values from other regional parks. Scientific plant collection acquisition and management is also very different from native coastal or forest vegetation management or from farmland management. Such divergent management requirements are difficult to accommodate in one organisation. There is therefore some evidence to suggest that a specialist agency is required to manage botanic gardens separately.

Auckland City

Auckland City Council covers the central Auckland isthmus and Waiheke Island. It has recently prepared a City Tree Policy (2000), which sets out strategies for enhancing the city treescape and continuing to implement and improve their tree inventory and management programmes.

Auckland City provides tree policy protection in four main ways in the City of Auckland proposed District Plan (Auckland City, 1999a). The first way is by managing a Schedule of Notable Trees, which are protected for their significant historical, botanical or amenity value and are identified on the Planning Maps. Parks managers and private land owners are able to put trees forward for schedule evaluation. Secondly, trees on coastal edges have special protection in that any trees and native bush must not be pruned or removed without approval from council (Auckland City, 1999a section 5B.4.2). Thirdly, land conferred with Park or Reserve status has legislative protection, and the

benefit of strategic council management. Finally there are General Tree Protection guidelines. In most residential zones, no native tree over 6m in height, or with a girth greater than 600mm (measured 1.4m above the ground), or any exotic tree over 8m in height or with a girth greater than 800mm (measured 1.4m above the ground), may be cut down, damaged, altered or destroyed without council consent. Also, work is not to be done around these trees which might endanger them, including excavation, drainage work, or storing materials within the 'dripline' of the tree. Public institutions are required to abide by the same tree protection regulations as private landowners. There are a few anomalies with this system e.g. The University of Auckland is in the Central Business District which has no general tree protection regulations, and therefore relies on the ethics of managers and owners to protect trees. The implicit assumption is that CBD land should be available for business development before any other values. A recent case where developers came onto their newly purchased inner city, Shortland St, site and removed several mature trees, including pohutukawa, with no consequences (Rudman, 2001), highlighted the vulnerability of city trees, and the importance of district plan scheduling of significant trees in the CBD.

Waitakere City

Waitakere City has an urban centre at Henderson, but is characterised more by the large tract native forest landscape of the Waitakere Ranges. The Waitakere City proposed District Plan (1998) emphasises safeguarding the ranges, 'greening' urban areas, sustainable development and management practices. The council has commissioned a booklet by Lucas Associates (1997) called '*A Guide to the Planting and Restoration of Waitakere City*', which clearly sets out appropriate native planting choices for the different ecosystem zones in Waitakere.

Waitakere City has a simplified zoning system where 'Natural Areas' and 'Human Environments' are identified, and different regimes apply to each. Tree protection rules are given under the 'Natural Areas' section, but it also says there is a general natural area zone covering most of the developed parts of the city also.

Native trees over 3m in height or with a girth of over 300mm and exotic vegetation over 6m in height or with a girth of over 600mm are protected within the urban area. Trimming and pruning of protected vegetation is permitted where the diameter of the branch does not exceed 50 mm and does not remove more than 30% of the foliage.

Waitakere City has a strong emphasis on restoration projects around its district. There are senior staff dedicated to the natural values end of the landscape management goals spectrum. This is borne out in the management approaches taken, such as widespread revegetation projects. There is strong community support for these projects (Chris Ferkins, Waitakere City Council, personal communication, October 1999).

North Shore City

North Shore City has had a colourful media exposure dealing with changes to its tree protection regulations over the last few years. In 1998, councillors made the decision to abandon their district plan tree protection regulations, in favour of allowing developers fewer restrictions, and therefore a freer rein in their district. This resulted in a huge public outcry (Bucknell, 1997). The council also restructured some key tree advocacy roles out of their staffing.

There was ongoing pressure to replace the regulations, from groups and individuals claiming that the council was too pro-development, and was not protecting the city tree and vegetation resource well enough.

Pressure on council has resulted in a reinstatement of tree protection guidelines. This is a very interesting case study in the pressures on council policy makers, both from developers operating at the human-use end of the landscape goals spectrum, and also from the environmental lobby, who operate further towards the natural values end of the goal spectrum.

In city zones, native trees and selected exotic tree species (30 listed) over 8m are protected. All native bush is protected in one zone, and the East Coast Bays zone protects all trees over 8m. There is also an extensive Schedule of Notable Trees.

Manukau City Council

Manukau City is located in south Auckland, where the population has a higher percentage of Maori (17%) and Pacific Island (20%) population (<http://www.manukau.govt.nz>, accessed 19/12/01).

The Manukau City council Planting Policy (1992), aims to develop a distinctive Manukau identity through widespread and well planned tree planting, which will highlight and integrate natural and man-made features and link urban areas. The planting themes place emphasis on indigenous species with selected exotic highlights. Explanation of this theme includes 'evergreen species with broad, glossy foliage or graceful, feathery appearance; bold texture, form and colour; exotics which reinforce the warm- temperate and subtropical character of the Manukau environment, and in keeping with the native flora and forest scale trees where appropriate'. Detailed theme signature species lists are given, for each of the character areas identified.

Manukau District Plan (1996) provides for tree protection of specific scheduled tree species, and significant scheduled native bush and trees. Parks managers and private land owners are able to put trees forward for schedule evaluation. There are no general tree protection categories.

Commentary

The wide variety of different values attributed to landscapes and vegetation by members of the public, city councillors and council staff from of each of the four cities, has resulted in distinct differences in their documented aims and tree management policies. This is part of the legislative or political context for the collections from each of the different cities.

Waitakere City has a bias towards environmental values. This is reflected in its Eco-city marketing image and policies. Auckland City is a stable urban area, which values its history and its trees as part of that history. Human uses in terms of recreation are highly valued by its urban residents. Its tree protection policies reflect this mid-ground position of conservation. Existing values are to be preserved, and new developments considered on their environmental and

human use merits. North Shore City is fast growing and in a sense 'making hay while the sun shines' in its pro-development policies of the last few years. The Albany stadium, Megacentre and motorway systems have gained approval and been developed with great ecological disturbance to the environment. Human use potential and values could be seen to have taken priority over ecological ones. Manukau City aims to create a strong city identity by promoting intensive planting of specific signature trees. The District Plan protects particular scheduled species and trees, but provides no general tree protection.

The policies and rules of the four city councils considered in this section clearly demonstrate different attitudes to landscape values and goals, and how these can affect the operating context for tree managers. This highlights the importance of considering this context in the strategic phase of the management process to enable managers to take advantage of, or compensate for particular council policies.

1.8 Conclusion to Chapter 1.

As the Ministerial Advisory Committee found in its report ((Ministry for the Environment, 2000, p. 3):

biodiversity contributes to our sense of national identity, provides ecosystem services upon which we all depend, is culturally important, defines our sense of place, and is valued by many as an expression of life itself.

This chapter has explored the complex biological and human values referred to in the quote above and concludes that urban trees are indeed critical in the fabric of human lifestyles and the ecology of the city.

Assessment of tree biodiversity, current management theory and practice are all essential in the management of urban tree collections. Plant collection managers seek to protect biodiversity for scientific, commercial, educational, recreational and aesthetic reasons. This introductory chapter has shown the importance of charting and managing plant biodiversity in New Zealand,

especially urban exotic tree collections in Auckland. This includes scientific tree collections, street trees, trees in parks and reserves, notable trees in public places and on private property, but does not include native forest remnants or plantation forestry. In preparing an inventory of amenity tree species in Auckland, this research project contributes to the data available for analysis and possible conservation monitoring of species over time. By knowing what is present and the character of the collections, researchers, planners and plant conservators are better able to manage the Urban Forest of Auckland.

Current management theory understands landscape management as a system in equilibrium, with many factors contributing to the operating environment: these include the political, economic and cultural framework. The process of management includes strategic, operational and monitoring phases. Effective information systems are essential in monitoring the outcomes of the management system. Landscape management is a complex and multi-disciplinary subject. Approaches to landscape management which concentrate on maintenance, or design, neglect the wide range of values to be considered for any site. Poor managers concentrate on the expression and maintenance of a narrow range of landscape values. The definitions of landscape management at the beginning of section 1.5, demonstrate a focus on basic maintenance of a site, or on aesthetic design without other values being fully considered. The consideration of the wide range of landscape values is essential for successful landscape management.

The landscape manager is well advised to take advantage of new technologies and the many management tools available for the management of tree collections. These tools include inventories, management plans, landscape mapping and design, assessment of carrying capacity of the site, information systems, global positioning systems, networking with other managers, consultants and public input.

The New Zealand environmental legislative and policy framework has developed from a quasi-government agency to a fully fledged Ministry for the Environment and Department of Conservation, with significant policy

obligations and funding base during the last twenty years. The conservation sector has recently received additional support, with the introduction of the New Zealand Biodiversity Strategy and associated funding allocation over the next five years. Tree collections may benefit indirectly from this funding, due to its allocation to the QEII Trust, among others. The Trust's sensitivity to the need for protection of historic private gardens, such as Eastwoodhill and Hollard's Garden may mean that further sites are brought under protection covenant. This highlights the lack of protection for privately-owned landscape sites by the Historic Places Trust. The historic values of landscapes and vegetation are not clearly funded by the Historic Places Trust, because of its strong focus on architecture values, and general funding issues. Auckland Regional Council and the four city councils under consideration have no mandate under the RMA (1991) to protect non-natural tree collections. Recreation facilities and parks gain territorial authority rates funding based on visitor numbers and gate sales.

Natural landscapes and vegetation are afforded values which warrant legislative protection and regulation by the Resource Management Act (1991), The New Zealand Biodiversity Strategy (Department of Conservation and Ministry for the Environment, 1998) and the Bio-What? Report (Ministry for the Environment, 2000). Urban landscapes and vegetation are not however included in the national identification, registration and protection process developed for natural areas. Plant collections such as botanic gardens have no legal status except as regional or city parks. Historic gardens have no status except in their association with historic buildings. If Auckland's tree collections are of value to the city, how can legislation, policy and management best protect them.

1.9 The Research Question

The research question posed is "What is the nature of the tree collections in Auckland, and how can landscape management better contribute to their biological and human use values?".

Having considered the importance and values of trees in the Auckland context, and the requisite principles of management, this research seeks firstly to characterise the biodiversity of Auckland tree collections at this point in time and secondly to consider how they are being managed in relation to the models considered in the literature.

This question will be approached by conducting a biodiversity study of Auckland tree collections and then a survey of management practices. Chapter Two covers how these surveys will be carried out.

This study will contribute to the understanding of the nature of Auckland's Urban Forest. The data gathered should be of interest to those involved in tree collection management (particularly in Auckland) including parks and botanic garden managers and managers involved in urban tree planning at regional and territorial authority level. The study will emphasise the best practices available to tree collection managers and highlight the need for protection of plant collections in Auckland and also around New Zealand.

CHAPTER 2: Methodology

2.0 Introduction

Landscape architecture is a multi-disciplinary profession which includes the management of the landscape. The profession considers the landscape as a cultural entity as well as a natural phenomenon (Eckbo, 1975; Swaffield, 1993). Art, history and aesthetics are as central to landscape design as are an understanding of the natural and horticultural sciences. Perhaps then, landscape architecture could be termed a 'cultural science'.

This research project is a study of tree collections in Auckland. Its first aim is to collect objective, measurable data about the nature of these collections, and then to analyse the data, drawing out any observable classifications within the data, identifying any patterns and comparing the data with other plant collection research in New Zealand. Species range, species origins, trade availability and genus collection value will be the measures of difference investigated.

The second aim of the project is to gain an understanding of the management of the collections. This management environment is a largely cultural one and suits the interpretative or inductive approach, where the aim is to gain an understanding and describe the situation rather than aiming to numerically quantify and classify it. It may be possible to further develop the models discussed in Chapter 1 to describe the management systems found.

Also of interest is a possible cause and effect relationship between tree collection ownership types and management practices. The hypothesis that private tree collection management practices will be significantly different from other ownership categories will be tested. The null hypothesis, H_0 , is that tree collection ownership and management practices are independent. Contingency table analysis will compare the observed results with expected results. If tree collection ownership does not affect management practices then results for all ownership types will not be significantly different. Chi-

square tests will be carried out to test for significant difference in frequencies. Therefore statistical analysis on the results gathered from the management survey will determine whether there is a dependence or contingency between tree collection ownership type and the results or answers to some of the survey questions.

In order to achieve these research aims, the consideration of a broad survey of research paradigms and tools is therefore appropriate.

2.1 Research Paradigms

2.1.1 Scientific Approach

Pure science seeks to gain an understanding of the world by observing, measuring and experimenting with natural phenomena. This is termed a 'positivist' approach (Merriam, 1998). Another term for this approach is 'quantitative'. Science can also be described as reductive, as it reduces complex inter-relationships down to understandable and controllable steps and processes (Cohen & Manion, 1994). Knowledge gained through scientific and experimental research is 'objective and quantifiable' (Merriam, 1998). Reality is absolute, stable, and knowable. Observation, experimentation and data collection uncovers this reality and the empirical evidence obtained by direct experience is the best way to acquire knowledge (Barratt, 1971). As Stewart & Cohen (1997) put it, 'take the system to bits – in a conceptual sense- and see how those bits fit together'. Science is an activity which uncovers new facts and adds to the existing accumulated body of knowledge (Kerlinger, 1970).

It also seeks to create theory to explain the knowledge gathered, thus providing a framework to the knowledge. This theory may then be used to predict the nature of further observation. Theory is defined by Cresswell (1994, p. 82) as:

a set of interrelated constructs (variables), definitions, and prepositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining natural phenomena.

Theory may also identify gaps in our knowledge and the need for further research (Burns, 1994; Cohen & Manion, 1994). Scientific theories are dynamic in nature. A theory can never be complete, in that further research may add to or refine the current model. When a body of theory is established, with a particular philosophical orientation, it becomes a paradigm (Cohen & Manion, 1994).

Therefore within any system, such as an ecosystem, a scientific researcher would seek to establish the elements which make up the ecosystem and their relationships to one another. Some elements are independent of others, while some will be closely linked or dependent, such as particular producer and consumer relationships in a food-chain. A mediating element or variable is one which intervenes between other variables in some way. In the food-chain example this could be a competing consumer species. In a landscape management system, urban amenity tree collections are dependent on arborists to remain in a healthy state. A mediating variable may be council tree protection policies relating to that area, or political factors which affect budget allocations for tree work.

Mouly (1978) identifies five steps in the process of empirical science:

1. experience or observation is the starting point for scientific enquiry. Cresswell (1994) downplays this, and suggests that a valid hypothesis may be formulated independent of observation.
2. classification - a formal systemisation of raw data.
3. quantification - more detailed analysis of data by mathematical techniques.
4. discovery of relationships - identification of relationships between phenomena.
5. approximation of the truth - science proceeds by gradual verification of truth.

This five-step process is useful for discussing urban tree collections. Experience would indicate that the Auckland region has a rich diversity of trees, managed

as discreet collections or sites. Existing botanical classification theory and systems are available to characterise the trees observed. In order to classify the collections themselves, theoretical frameworks established about botanic gardens, parks and reserves and components of Urban Forest will be compared with what is found in Auckland collections. This will be by way of both interpretative and mathematical analysis. This process will verify or challenge existing theory frameworks.

2.1.2 Interpretive or Qualitative Approach

A second research approach is known as the 'interpretative' or 'qualitative' approach (Merriam, 1998). An inductive or theory generating style of research is useful when aiming to gain an understanding and explaining the meaning of social phenomena or processes. The researcher does not start with a hypothesis to test, but seeks to allow theory to emerge as data is collected and analysed (Creswell, 1994). Theory has the same meaning in qualitative research as quantitative research. Some qualitative methodologies allow for the use of a causal theory base to inform research design e.g. a theory of emancipation or repression may be the stated causal theory for an ethnographic study (Cresswell, 1994). Open ended questions in a survey of tree managers will gather qualitative data for interpretation in this study.

2.1.3 Critical Approach

A third research approach is the 'critical' approach in which knowledge generated is an ideological critique of power structures, and the purpose of the research may be to bring about change to the status quo. An example of critical research would be an extension of the example given in Section 2.1.1, where the stated purpose of the research was to implement changes to state government tax policies. In the education arena, critical research may be carried out with the express intention of restructuring a management hierarchy. Critical research, like some qualitative methodologies, bases research on causal theories. This critical approach is not suitable for analysing biodiversity. There is no direct action planned as a result of this study. However publishing articles about the findings of the study may influence the way city

tree planning managers manage their collections. A territorial authority could use a critical research study to support change to the management practices of its street tree managers.

2.1.4 Analysis of Paradigms

One key difference between the quantitative or positivist approach, and the qualitative or interpretative approach is the way each begins the research process. Quantitative scientists approach research with a theory or hypothesis in their mind, which they wish to validate. Qualitative researchers go in to understand a situation, and to induce a theory for what they find (Cresswell, 1994). Both are valid, and in reality, most research is probably a combination of both approaches, e.g. based on an initial hunch from observation and steered by early findings. When determining a research topic, this cyclical process can be useful in defining a specific research question. Critical thought opens up possibilities, and the reasons why something is important, while reductionist thought narrows things down to a specific question which is able to be answered.

The weakness or limitation of the scientific approach is its tendency to try to reduce very complex systems down to 'knowable' steps, which sometimes misses the point entirely and seems to negate the 'unknowable' mystery of the universe around us. Stewart and Cohen (1997) give excellent account of the futility of reductionism, and suggest the scientific researcher must aim to consider the different levels of knowledge which can be sought and place their research in that spectrum and therefore within the existing theoretical body of knowledge. Therefore, used in isolation, the scientific approach may be weak, but that weakness may be overcome by consciously placing the research in a wider context, and seeing it in the context of the 'big' picture.

As a cultural science, landscape architectural research is a suitable ground for both qualitative and quantitative research approaches. Quantitative methods are useful for elucidating natural environmental systems as well as the impacts made on those environmental systems by humans. Qualitative approaches are

useful for determining the human values which underlie the use and sometimes abuse of those environmental systems. Both approaches will be used in this study.

2.2 Review of Two Research Tools

The two research tools used in this research are surveys and interviews.

2.2.1 Surveys

Surveys are largely a quantitative research tool, suitable for use in either descriptive or case study research methods. They are a means of gathering information that describes the nature and extent of a specified set of data. This data can range from physical counts and frequencies to attitudes and opinions (Isaac & Michael, 1995) e.g. telephone, archival or mailed questionnaires. The data generated can be used to describe what exists and to answer wider questions, identify problems, establish baselines for comparison and ultimately to make recommendations for change and improvements in practice. Surveys should be systematic, representative, objective and quantifiable (Isaac & Michael, 1995). Forward planning of survey documentation and participant instructions are key to achieving these characteristics and therefore crucial in successful mail-out surveys.

Surveys have many advantages and strengths. These include their capacity to be wide-ranging and inclusive of a large sample numbers, and to be relatively inexpensive, due to the low cost of printing and posting questionnaires. Lower personnel levels are required to administer surveys in comparison with other tools such as interviews and focus groups. They also offer the respondent the opportunity to be anonymous and to avoid answering questions he/she is not comfortable with. Carefully planned and designed surveys are able to collect large amounts of useful survey data for research analysis.

There are several limitations and difficulties associated with surveys. These include the large amount of data which must be first collated and then analysed. The data collected is only as useful as the clarity and focus of the questions asked in the survey. Poorly defined or ambiguous questions lead to

invalid data. There is also no assurance that questions were understood. Respondents who have not had the level of education assumed by the researcher may not be familiar with terms and concepts from the relevant body of knowledge. The response rate to surveys is unpredictable, and can be low. Small samples make the results less statistically useful. Most of these difficulties may be overcome with careful survey planning and question design. Consideration of the respondents ease of survey completion and workload patterns, along with seeking the widest sample possible, allow the mailed survey used in this research to be an effective and appropriate data collection tool.

Many researchers wishing to gain understanding of a biological or cultural subject will conduct a survey (Isaac & Michael, 1995). Surveys are a well-accepted tool for collecting biodiversity data, cultural responses to the landscape and landscape management data. In New Zealand, mailed surveys have been used to gather tree species data (Jamil, 1998; MacKay, 1996) and plant trade availability data (Gaddam, 1999). Before electronic data base systems such as Botanic Garden Conservation International (BGCI) (Leadley *et al.*, 1993), most botanical garden data would have been gathered by surveys in the form of written lists. The American Forest Service surveys the condition of urban forests regularly to monitor average tree life and canopy cover (Moll, 1995). The impressive biodiversity data collection and analysis prepared by the World Conservation Centre (Groombridge 1992) was achieved by surveying government agencies around the world for collection data. Tree management studies are often carried out by survey (Doherty *et al.*, 2000). Landscape preference analysis work by Kaplan (1992) also was gathered by way of survey. In 1988 parks managers at Auckland's Regional Parks (ARA, 1988) used surveys to collect data about visitor satisfaction and activity preferences when visiting regional parks in Auckland.

A mailed survey has therefore been selected as an appropriate research tool and will be used to gather species biodiversity data from tree collections in Auckland.

2.2.2 Interviews

An interview can be described as:

a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by research objectives of systematic description, prediction, or explanation (Cannell and Kahn, 1968, p. 372)

Interviews allow for greater depth of understanding to be achieved than other methods but are prone to subjectivity and bias (Cohen & Manion, 1994). They provide opportunity for gaining greater understanding than a questionnaire, as the interviewer can personalise the approach, and question further or probe the respondent in light of the responses given. They also may be used to clarify or validate results or to follow up on unexpected results (Cohen & Manion, 1994).

The interviewer must use generally accepted interview conditions, so that accurate data may be obtained. This includes using an appropriate setting and questioning technique, developing rapport between the parties and finding a sincere, well-motivated respondent. Constraints due to the nature of everyday interpersonal transactions e.g. power, issue and conflict avoidance, and misunderstanding, are to be considered and mitigated where possible. Interviewer bias is also to be acknowledged and managed where possible (Kitwood, 1977).

In constructing survey and interview questions, a range of different types of questions were used. These include:

- Fixed alternative answer questions, which ask the respondent to select the most correct answer from a given list of possible answers. This provides the researcher with a uniformity of responses which are easily coded, but the responses are more likely to be superficial.
- Scale of agreement questions, which first give a written statement and then

ask the respondent to indicate the level of agreement he/she associates with the statement. This is indicated on a range of numbers, often from 1 - 5, from least to highest level of agreement. They can be used to quantify or clarify open ended question responses (Cohen & Manion, 1994; Kerlinger, 1970).

- Funneling questions are a series of questions which lead the respondent from general to specific issues. The aim is to make the respondent feel at ease with the general questions, before asking more pointed or specific questions.
- Open ended questions ask a question, and provide a space for respondents to write their answer. This type of question puts a minimum restraint on answers, and allows respondents to give a more accurate and meaningful answer. Open ended questions require a frame of reference at the beginning, to set the context of the question, and may have further probing questions following. The responses produced are more difficult to analyse than from fixed alternative or scale-of-agreement questions.

Interview Use By Other Researchers

Interviews are commonly used to gather opinions and qualitative data in many fields of research (Burns, 1994). These fields include educational research (Powney & Watts, 1987), psychiatric assessment and employee selection (Cohen & Manion, 1980), business psychology studies (Sibbald *et al.*, 1994), and landscape research. Examples of the use of interviews in the field of landscape research include gaining public input in urban forest planning (Elmendorf & Luloff, 2001), gauging user preferences for recreation planning (Auckland Regional Authority, 1988), psychological landscape research (Kaplan, 1985, 1992), attitudinal research on urban forest preferences (Getz *et al.*, 1982; Hull, 1992), assessing aesthetic preferences of urban forest users (Schroeder, 1989), analysing community attitudes to urban vegetation (Kilvington & Wilkinson, 1999). Auckland Regional Parks staff encourage voluntary public feedback by asking visitors informal questions, and may also enhance questionnaire data, by adding interview questions while recording survey responses, to gain more in-depth information (Auckland Regional Authority, 1988).

2.2.3 Research Approach and Methods for This Study

Tree collections are cultural phenomena as well as a biological one. Firstly biological data is collected and analysed in a biodiversity survey. Secondly the management systems are investigated using the management survey. The collections are designed and managed by people and the cause and effect relationships in the system relate largely to human inputs to the system.

Biodiversity survey

In order to ensure the biodiversity data collected could be compared with existing data, the following studies were considered when preparing the biodiversity survey list. MacKay's national survey (1990) considered northern hemisphere temperate trees found at Eastwoodhill Arboretum in order to establish the relative importance of Eastwoodhill nationally. Her list formed a skeleton for this survey. Fifty-nine 'Great Trees' of the Auckland area, classified by Burstall and Sale (1984) were added where missing from MacKay's list, to investigate their continued existence. Most of the genera listed in the RNZIH's Plant Collections Register (Hammett, 1993) is herbaceous plant material, however the tree genera were incorporated. Most of Jamil's (1998) survey of threatened and endangered plants were considered outside the scope of this study. Flook's (1994) list of notable trees in the Auckland area was incorporated. Further tree species were also added to the survey list, in order to include common native and sub-tropical amenity trees in Auckland based on local knowledge and a list of 'Fifty Trees for Auckland' by the Tree Council (Hogan, 1990). The New Zealand Plantfinder gives a list of taxa available in the nursery trade (Gaddam, 1999). This was very extensive (8000 taxa), and included many unusual cultivars, and so was discounted for inclusion in its entirety. Additional tree species listed as present by tree collection managers were added to the database. Initially the survey was sent out to individuals responsible for the management in each of the local authorities in the Auckland and Northland regions along with private collectors, nursery owners, Department of Conservation and Historic Places Trust offices. These contacts were collected from interest groups, such as the Royal New Zealand Institute of Horticulture members, UNITEC academic staff, and Tree Council members. Response from

Northland was limited to lists of notable trees from Northland district plans and one nursery list. Due to this incomplete coverage, particularly of parks, reserves and historic sites, it was decided to narrow the scope of the research to the Auckland region.

The biodiversity survey was mailed to 42 collection managers asking them provide information about the trees in their collection. Firstly they were asked to indicate the species in their collections by either ticking boxes in the survey species list, or by providing their own collection list. Secondly, they were asked to indicate the numbers and age of the trees, and lastly to indicate where they obtained the plant material. Lists for 38 tree collections were returned. Some managers sent lists for more than one collection, such as the Auckland City parks managers. Three managers wrote to say they were too busy to respond within the time frame required.

The characterisation of the biodiversity reported is to include a count of the total number of taxa reported, an analysis of the best represented species, genera and families, tree origins, trade availability, and a comparison with data from other researchers. The collections will be characterised in terms of their size, genera collections, ownership type, age and location.

Management Survey

In order to investigate the extent to which collection managers were using the management theory and tools reviewed in Chapter 1, a second survey was developed. In his article about native plant collections, Oates (2000) reports on a survey of native plant collection managers. He records the information the managers were asked to supply, which included a list of species, record of collection objectives, plant record systems, age and type of collection, and threats to collection. These were all appropriate questions to include in this study, especially as they could be compared with Oates' results.

The management survey questionnaire asked managers firstly to provide information about their collection such as age, type and constituent elements

which make up the collection. Secondly managers were asked to report on their management goals, use of management plans, plant record systems, public and professional input to the management process. Lastly managers were asked to evaluate their collection in terms of tree diversity, condition, maturity spread, level of maintenance, presence of rare species and collection threats. The results are recorded in Chapter 4. Recommendations regarding collection management at the local, regional and national scale will be drawn from a comparison between these results and the literature review.

During the biodiversity data analysis stage, certain similarities in management practices were identified, which were potentially related to collection ownership types. For example the information records for private collections seemed generally less well documented than other collection ownership types. The hypothesis tested was that collection type affected or had an influence on responses to questions about collection age, management planning, public consultation methods, collection components, information management systems, biodiversity indicators, perceived threats to biodiversity, access to professional consultants, and attitude to tree regulations and legislation. Refer to Section 2.2.4 for a discussion of statistical analysis used.

A draft survey form was pre-tested on two colleagues with experience in plant collection management. Both have been plant collection managers in previous jobs. One is now a technician and the other an academic staff member in the School of Landscape and Plant Science at UNITEC Institute of Technology. Although small the pre-test proved very useful. Changes were made to clarify the information being sought and to make questions clearer. The responses from the two pre-test respondents provided the opportunity to convert the open-ended questions which elicited a common range of responses into 'fixed alternative' questions, and therefore to streamline the questionnaire process and the analysis of results. Three questions remained open-ended, following the amendments. These questions were to encourage a deeper level of response and answers were coded individually for qualitative recording. The final version of the questionnaire may be viewed in **Appendix 5**.

The aim with this second survey was to include all the managers who had responded to the first survey. Of the 38 collections, 12 were Auckland City Council parks. Bryan Gould as city arborist responded as manager of all these collections. Some collection lists were gained from council administration staff, tree consultants e.g. Mike Wilcox and Lance Goffart Hall. Others came from management plans or nursery trade lists. This left 11 other 'real' managers to send the second survey to.

Bryan Gould's answers about the group of 12 parks have been treated as relating to one collection. This becomes inaccurate in Question 3, relating to documented goals and Question 5, relating to Management Plans. His affirmative answer in both cases masks the fact that some Auckland City Parks may not have a Management Plan or documented goals. However in general this approach reports true best practice by parks managers, even if it is not consistent for all parks across Auckland City. It also avoids parks management practice dominating the responses, by including individual answers for every park. Department of Conservation responses were also treated in this way.

When the management surveys were returned, four follow-up visits/interviews were undertaken. The interview was used to encourage the managers who had not returned their surveys to do so, and to clarify anomalies in questionnaire responses. Some specific information elicited during the interview included more detailed descriptions of the management structures, the determinants and constraints of that management structure, and the effects of local body policies on the collection. The interview process introduced bias to the results, as those managers would not have otherwise returned their survey questionnaires, and responses gained were possibly fuller in the interview situation. The advantages to be weighed against the bias introduced were a fuller set of data and the in-depth perspectives of collection management gained by the researcher.

2.2.4 Statistical Analysis Tools

Microsoft Excel spreadsheet package and analysis tools have been used to display the numeric results shown in Chapter 3 and Chapter 4.

The relationship between the two variables of collection ownership and management practices was analysed using Minitab (DataPack Software Inc.) and SAS (SAS Institute Inc.) statistical analysis packages. Functions from these programmes which were used in this analysis included contingency tables and Chi square analysis. Observed frequencies were recorded in a contingency table where the paired results were organised into columns and rows and are compared with expected results. The management null hypothesis will be supported if the actual results do not vary significantly from the expected frequencies. For small sample sizes resulting in frequency counts of less than five, the sample statistic may not approximate the theoretical chi square distribution very closely (Harrison & Tamaschke, 1984). Observations made about such small samples of data should not therefore be extrapolated further.

2.3 Research Quality Issues

A key question for any research or data-gathering process is whether the results are valid. 'Validity' seeks to ensure that research tools test what they are intended to test (Isaac & Michael, 1995). 'Triangulation' is a useful tool for identifying whether information gathered is valid. Triangulation is the process of validating results by using different research tools. If data gathered from two or more different research techniques agrees or supports the hypothesis or theory being tested then the research is seen to be more reliable or has greater validity than theory developed or tested using only one data collection method (Cohen & Manion, 1994). This study uses interviews with collection managers to validate management questionnaire results. Triangulation is a good tool for increasing validity of research tools. Survey design was based on previous survey methodology in the field. The nature of the large biodiversity survey booklet did put some people off answering. A simple request for a list of species in their collection would have been simpler for some managers. The problem here would be with those managers who had no records, and may be daunted by having to record their collection with no list to prompt them. Piloting the interview questions highlighted ambiguities and lack of focus in proposed questions. Subsequent changes to the questions increased survey validity, as well as streamlining data collation. Reliability (Isaac & Michael, 1995, p. 134) or accuracy of the research tool may be improved by checking texts,

ringing respondents, ringing authoritative taxonomists, botanists and nursery people to clarify taxonomy anomalies.

In this research incorrect nomenclature of the tree species was a significant problem in the species survey. Inaccuracies included outdated botanical names, incorrect spelling and the use of common names instead of botanical names. Botanical and taxonomic texts, nursery staff, the New Zealand Plant Finder were used to validate botanical names (Gaddam 1999). For example, Cedar Lodge Nursery has been very helpful with conflicting conifer names. The botanical names given by managers were not checked against the identity of the trees in this survey. This must be taken into account when viewing the species data in **Appendices 6 and 7**.

The problems associated with interviews were dealt with as follows. A strategy to avoid bias is to make questions as clear and transparent as possible, and pre-test them, to avoid using on-site reactions to steer the interview. A strategy for establishing rapport is to make phone contact with the respondent before the interview. An informal discussion about the project was used to 'set the scene', and to arrange the interview at the manager's site, giving a time frame, providing questions beforehand and offering to clarify any points which are unclear. A neutral interviewer stance was used to avoid power-play issues. Successful manager interviews were facilitated by selecting interviewees who are sincere, well motivated respondents, and are passionate about the research subject (Isaac & Michael, 1995).

2.4 Conclusion

This chapter has reviewed current research paradigms and methodologies, and described the research methods used in this research. The result of these research methods is a body of biodiversity and management data which records the nature and management of the amenity and park tree plantings in Auckland, as well as the specialised tree collections such as found at botanic gardens, and other scientific plant collections. This data will be discussed in Chapters 3 and Chapter 4, and the body of biodiversity data may be viewed in **Appendices 6 and 7**.

CHAPTER 3: Results: Biodiversity Survey

3.0 Introduction

The aim of this chapter is to present and analyse the biodiversity data gathered from 38 Auckland tree collections. This analysis will characterise the tree collection biodiversity of Auckland and examine its character in relation to other national tree biodiversity studies. **Appendix 6** is a summary data set presenting the full list of taxa reported in 38 Auckland collections surveyed, and the collections reporting each taxon. **Appendix 7** is a full data set showing individual collection taxon entries including age and source information where available.

3.1 Diversity of Auckland Tree Collections

3.1.1 Species Diversity

There are 1259 species and cultivars of trees from 236 genera, represented in the 38 collections surveyed. A summary list of the trees may be viewed in **Appendix 6. Table 3.1** overleaf shows the total number of taxa found in each of the 38 tree collections surveyed.

Table 3.1 Total Number of Taxa in Auckland Tree Collections

Rank	Collection Name	Code	Number of taxa listed
1	Auckland Regional Botanic Garden	[120]	918
2	Auckland City Street Trees	[138]	332
3	University of Auckland	[173]	194
4	Manukau City Street Trees	[158]	190
5	Auckland Domain	[153]	169
6	Cornwall Park	[157]	159
7	Auckland City Notable Trees	[183]	123
8	Eden Gardens	[149]	108
9	Albert Park	[148]	103
10	Centennial Park	[170]	93
11	UNITEC	[146]	91
12	Winnifred Huggins	[143]	89
13	Mt Albert Research Centre	[142]	74
14	North Shore Notable Trees	[169]	71
15	Waikumete Cemetery	[155]	67
16	Hayman Park	[152]	63
17	Oratia Native Plants	[137]	60
18	Western Park	[147]	60
19	Mt Wellington Domain	[144]	55
20	Highwic House	[174]	54
21	Restricted	[139]	49
22	Mt Victoria Trees	[168]	45
23	Western Springs	[154]	41
24	Waitakere Listed Trees	[178]	41
25	Monte Cecelia	[175]	38
26	Wilson Home	[163]	35
27	Mt Richmond	[151]	31
28	Alberon Reserve	[167]	30
29	Mt Cambria Reserve	[171]	24
30	Devonport Domain	[172]	23
31	Auckland Zoo	[156]	21
32	Opanuku Subtropicals	[160]	19
33	Chelsea Sugar	[141]	16
34	Alberon	[176]	15
35	Enzed Subtropico	[140]	14
36	St Kentigern's School	[181]	18
37	Landsendt	[161]	15
38	Waiata Palms	[145]	14

The largest tree collection in the Auckland region is contained at the ARBC (Collection 120). It has 918 tree species and cultivars represented in its tree database. The smallest collection in the survey is Waiata Reserve in Birkenhead (collection 145), with 14 palm species. The average size of the 38 collections surveyed was 32 species. **Figure 3.1** shows the relative size of the 38 Auckland Tree Collections surveyed.

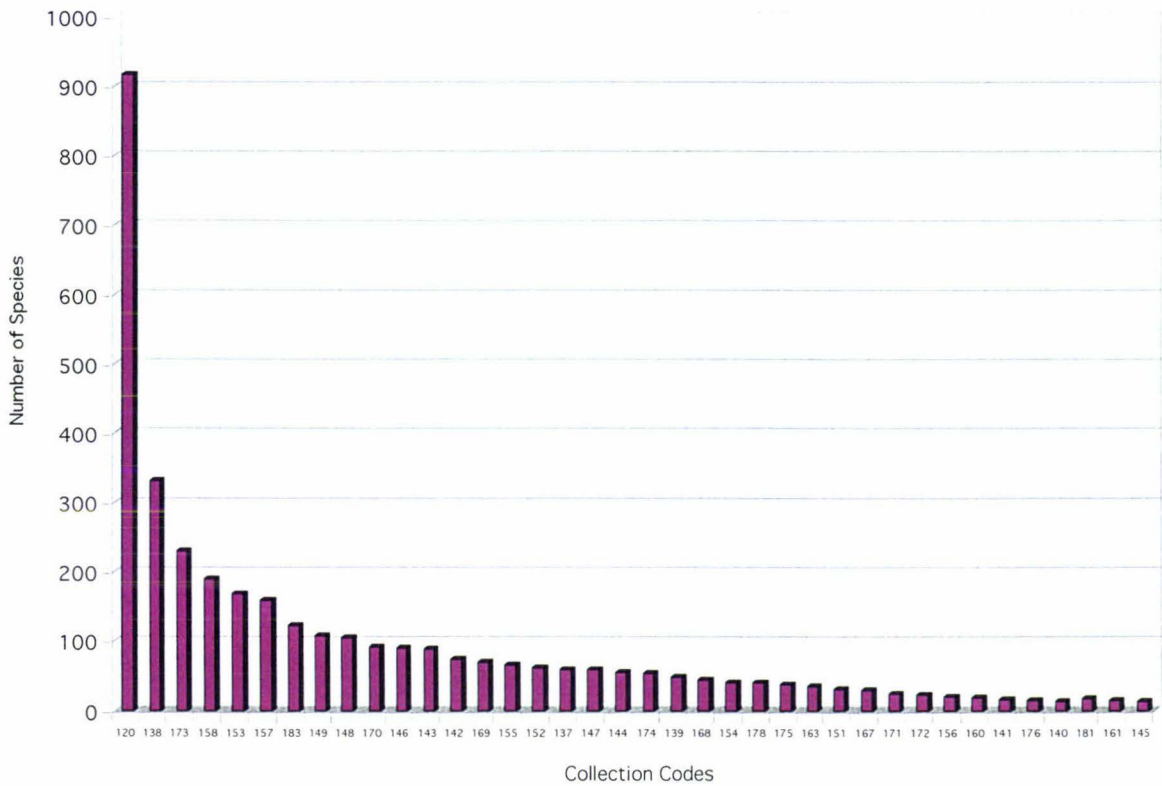


Figure 3.1 Number of Taxa in Auckland Tree Collections

Mackay (2000) summarises well-accepted criteria for assessing individual collections. These include species diversity, genus representation, rarity values, tree maturity and condition. There are no international standard collection size criteria, as a size scale takes little account of other qualities of the collection. However when comparing 38 collections, overall number of taxa does provide a point of comparison of general collection diversity. There were nine collections with more than 100 tree species and cultivars represented. These will be considered the larger collections in the Auckland area for this discussion. Regardless of size, any of these collections may be important for scientific values, such as genus collection value, or other landscape values discussed in Section 1.2. The sub-sections following, analyse the species data collected.

3.1.2 Most Commonly Represented Trees

Table 3.2 shows the most commonly represented trees in the collections surveyed.

Table 3.2 Most Commonly Represented Species in Auckland Tree Collections.

Botanical Name	Number of collections listing (out of 38 collections)
<i>Podocarpus totara</i>	27
<i>Vitex lucens</i>	26
<i>Quercus robur</i>	26
<i>Metrosideros excelsa</i>	23
<i>Araucaria heterophylla</i>	23
<i>Phoenix canariensis</i>	22
<i>Corynocarpus laevigatus</i>	21
<i>Agathis australis</i>	21
<i>Cordyline australis</i>	20
<i>Pinus radiata</i>	19
<i>Sophora microphylla</i>	17
<i>Quercus palustris</i>	17
<i>Sophora tetraptera</i>	12

Podocarpus totara was listed in 70% of all surveyed collections. Nine of the most commonly found trees were native species. All but two trees most commonly found are evergreen species. This analysis gives an indication of the general character of the collections surveyed. The collections surveyed intentionally include a large number of parks, reserves and public amenity areas. Many of the park collections surveyed included all of the most commonly represented species listed in **Table 3.2**. Evergreen trees, including native species are clearly well-represented in these collections. This represents a significantly different character from the focus of the Mackay national survey of temperate species.

Any numerical summing of the number of individual trees found of a particular species is invalidated by the fact that many of the survey lists did not report how many of each species were present.

Ten out of the 13 tree species in **Table 3.2** are in the Tree Council's booklet entitled '*50 trees for Auckland*' (Hogan, 1990). The three species not on the Tree Council's list are *Pinus radiata*, *Quercus robur* and *Phoenix canariensis*. The large size of these trees explains their exclusion from a list of trees recommended to the public for garden plantings. This result confirms the specialist role tree-focussed groups play in providing useful public information and education.

3.1.3 Comparison with Other Tree Surveys: Burstall & Sale (1984)

Table 3.3 shows the 57 individual trees Burstall & Sale (1984) classified as Auckland's 'Great Trees'. These are trees of significant individual value of some kind. The table indicates whether or not their continued existence is confirmed by this survey.

Table 3.3 Burstall and Sale's (1984) List of Auckland's Great Trees

Burstall & Sale's great tree	Address	Confirmed by this study
<i>Melia azedarach</i>	99 St Luke's Rd	Yes. Notable tree
<i>Baloghia lucida</i>	Kawau	Yes
<i>Cedrus atlantica</i> 'Glauca'	139 Gillies Ave	Yes. Notable tree
<i>Erythrina crista-galli</i>	UNITEC	Yes
<i>Podocarpus elatus</i>	St Kentigern's School, 82 Shore Rd, Remuera	Yes. Notable tree
<i>Lophostemon conferta</i>	91 St Heliers Rd	No
<i>Cordyline australis</i>	Uxbridge Presbyterian Church, Howick	No
<i>Sequoiadendron giganteum</i>	Domain	Yes
<i>Cedrus libani</i>	Mon Desir	Yes, North Shore list
<i>Jubaea chilensis</i>	Kawau and Monte Cecelia	Yes
<i>Davidia involucrata</i>	Government House	Yes. Notable tree
<i>Ulmus parvifolia</i>	Corner Manawa and 184 Orakei Roads	No
<i>Araucaria columnaris</i>	Western Park	Yes. Notable tree
<i>Cedrus deodara</i>	The Pines, Owens Rd, Epsom	Not on notable list
<i>Dracaena draco</i>	Diocesan University Hall, 9 St Stephens Ave, Parnell	Yes. Notable tree
<i>Ulmus procera</i>	Hafton Estate, Kaukapakapa	Outside research boundary
<i>Quercus robur</i>	Beside Bombay motorway	Outside research boundary
<i>Enterolobium contortisiliquim</i>	St Kentigern's School, 82 Shore Rd, Remuera	Yes
<i>Eucalyptus sp.</i>	Orua Bay, Manukau Harbour	Outside research boundary

<i>Ficus 'Australis'</i>	Marcellin Hall, Hillsborough	No
<i>Stenocarpus sinatus</i>	147 Corner Gillies Ave and Owens Rd, Epsom (flats)	Yes. Notable tree
<i>Celtis occidentalis</i>	41 Benson Rd, Remuera	No
<i>Araucaria cunninghamii</i>	Monte Cecelia	Yes
<i>Ilex cornuta</i>	91 St Heliers Rd	No
<i>Jacaranda mimosifolia</i>	A.C.E Rocklands, Gillies Ave UNITEC	Yes
<i>Corynocarpus laevigatus</i>	Sylvan Park, Pupuke, Milford	Yes. North Shore list
<i>Agathis australis</i>	Parry Park, Warkworth and, Kauri Park, Birkdale	Outside research boundary Yes. Chelsea list
<i>Eucalyptus citriodora</i>	Dove-Myer Robinson Park	No
<i>Platanus x hispanica</i>	Marcellin Hall and The Pines	Yes No
<i>Cupressus macrocarpa</i>	Cornwall Park and Grey Dene, Rangitira Ave, Takapuna	Yes Not on Shore notable
<i>Ginkgo biloba</i>	Albert Park (Wellesley St)	Yes Yes
<i>Cupressus lusitanica</i>	The Pines, Owens Rd, Epsom	Not on notable list
<i>Castanospermum australe</i>	Owens Road, Epsom	Yes. Notable tree
<i>Lagunaria patersonii</i>	Monte Cecelia	Yes.
<i>Olea europaea</i>	Cornwall Park grove	Yes
<i>Phytolacca dioica</i>	Albert Park	Yes
<i>Carya illinoensis</i>	End of Churchhouse Road, Greenhithe (D.G Gray's)	Outside research boundary
<i>Juniperus virginiana</i>	The Friary, Hillsborough Rd	No
<i>Macadamia tetraphylla</i>	St Kentigern's School, 82 Shore Rd, Remuera	Yes. St Kent's list
<i>Meryta sinclairii</i>	Domain	No
<i>Pinus radiata</i>	Domain	Yes. Notable tree
<i>Corymbia ficifolia</i>	Cemetery frontage, corner Liverpool St and old main road, Papakura	Outside research boundary
<i>Sequoia sempervirens</i>	Kawau	Yes
<i>Dacrydium cupressinum</i>	Centennial Memorial Park, Titirangi	Yes. Notable tree
<i>Macadamia integrifolia</i>	37 Pupuke Rd, Takapuna	Yes. Shore
<i>Taxodium distichum</i>	Myers Park	Yes
<i>Beilschmeidia tarairi</i>	Greenlane Rd, Cornwall Pk	Yes
<i>Planchonella</i>	Greenhills, Waiwera	

<i>novo-zelandica</i>	(Barratt – Boyes)	No
<i>Cedrela toona</i>	Lower Myers Park	Yes
<i>Ailanthus altissima</i>	Bowen St, Albert Park	Yes
<i>Quercus cerris</i>	Redemptionist Father's Monastery and Church, 510 Glendowie Rd, Glendowie	No
<i>Syncarpia glomulifera</i>	The Pines	Yes. Notable tree
<i>Cryptocarya obovata</i>	A.C.E Rocklands, Gillies Av UNITEC	Yes. Notable tree
<i>Eucalyptus longifolia</i>	Cemetery frontage, corner Liverpool St and old main road, Papakura	Outside research boundary
<i>Populus yunnanensis</i>	Corner of Sturdee St and Market Place, City	No

This research confirms the continued existence of 60% of the Burstall 'Great Trees'. A further 12% were outside the research area boundaries. The remaining 28% of trees are unaccounted for by the survey. The sources of confirmation included the district plan notable trees schedules, management plan vegetation survey lists, and collection inventories and lists. Particularly useful for confirming the Burstall 'Great Trees' were the territorial authority notable tree schedules from Waitakere, North shore and Auckland City District Plans, which provide street addresses for the trees as did Burstall. Manukau City Council's protected species list did not provide information on individual trees. The street tree lists generally only listed which ward the tree was in, not the street location. Management plans vary in the location information provided. Some such as the management plan for Albert Park, include a detailed tree location map. The continuing existence of many trees was confirmed because of the useful plant information systems used by tree collection managers around Auckland.

A number of factors contribute to the 28% of Burstall's trees unaccounted for by the survey. The first is that the survey of tree collections simply did not include the trees, for example large native trees in natural areas or that the trees no longer exist. The threats on trees noted when researching collection lists include redevelopment pressure on older suburbs such as Epsom, where large property sizes and prestigious school zoning makes cross-lease options

very attractive to land owners. Large existing trees often represent a constraint to the building options on a cross-lease section, and so tree removal becomes an attractive option to a developer or private owner wishing to maximise the number of dwellings on a site, and therefore the potential financial return.

Redevelopment was identified as a reason for removal of large trees at St Kentigern's School on Shore Road, where several large trees have been removed to allow for a new school building. Transplantation of mature trees to new sites may also account for some gaps e.g. palms are particularly easily transplanted due to their small root-ball. These threats may account for loss of some of the unaccounted for trees. This result is also evidence in the case for more of the trees to be listed on City Council notable tree schedules, which is the reason for the establishment of the RNZIH list (Flook, 1994).

The fact that 28% of Burstall's Great Trees were not included in this survey illustrates the incompleteness of easily accessible plant records for Auckland's Urban Forest, and the need for continual improvement and updating of plant records for monitoring purposes.

The importance of plant record systems for the thorough monitoring and protection of urban trees is reconfirmed by this research.

Comparison with Other Tree Surveys: MacKay (1990)

MacKay's survey (1990) collected data on 17 particular exotic genus groups from 33 tree collections around New Zealand. This was used as a comparison with the species in those genera present at Eastwoodhill Arboretum. The survey clearly established the national significance of the large exotic tree collection at Eastwoodhill, which contains 2600 species and cultivars of woody plants, mainly from the northern hemisphere. Many of the 17 genera surveyed were well represented in terms of percentages of species in the genera, but only present in a very small number of collections. MacKay (1990) concludes that although there is a wide variety of exotic ornamental trees present in New Zealand,

many are in very small numbers and are not freely available. **Table 3.4** compares the number of species and cultivars found in Mackay's 17 selected genera, with their occurrence in Auckland tree collections.

Table 3.4 Comparison of Genera in Mackay's National Survey (1990) with Auckland Tree Collections

Genera	Mackay survey		Auckland survey		% of Mackay survey represented in Auckland survey	
	Species	Cultivars	Species	Cultivars	Species	Cultivars
<i>Abies</i>	59	6	4	0	7	0
<i>Acer</i>	90	63	28	31	31	49
<i>Aesculus</i>	16	10	7	2	43	20
<i>Alnus</i>	26	6	6	4	23	67
<i>Betula</i>	43	8	19	5	44	55
<i>Fagus</i>	7	15	1	4	14	27
<i>Fraxinus</i>	35	8	10	4	29	50
<i>Ilex</i>	27	21	6	0	22	0
<i>Juniperus</i>	41	102	8	52	19	51
<i>Magnolia</i>	44	87	27	95	61	109
<i>Malus</i>	34	40	9	12	26	30
<i>Picea</i>	41	24	8	9	20	38
<i>Pinus</i>	124	7	39	5	31	71
<i>Prunus</i>	51	79	23	51	45	65
<i>Quercus</i>	153	20	17	1	11	5
<i>Tilia</i>	19	2	4	1	21	50

Few of the 17 genera which Mackay studied are well represented in Auckland. *Magnolia* has the highest species representation with 61% of the species found elsewhere in New Zealand are represented in Auckland collections (ARBG). *Aesculus*, *Betula* and *Prunus* have between 40-45% species representation. *Betula*, *Fraxinus*, *Juniperus*, *Magnolia*, *Pinus*, *Prunus* and *Tilia* are genera with cultivar representation of higher than 50%. There are more *Magnolia* cultivars in Auckland than found in Mackay's survey. The ARBG has the largest collections of each of these genera.

Many temperate species do not grow well in Auckland, due to climatic factors such as high rainfall and warm temperatures. This is likely to be a major factor in the low representation of the genera considered, along with the personal preferences of tree collectors in Auckland. In summary, Auckland collections do not hold widely representative collections of northern hemisphere genera as surveyed by MacKay, except for *Magnolia* species and *Juniperus*, *Magnolia*, *Pinus* and *Prunus* cultivars. Many species and genera considered in this survey were not within the scope of MacKay's work and therefore are not comparable eg. *Eucalyptus*. Further research into the flora present in New Zealand is called for.

Species listed from MacKay's instrument, not reported in the collections surveyed have been removed from the results list in *Appendices 6 and 7*. These come under three categories:

- 1. Northern temperate deciduous species**, not found in Auckland collections, such as particular species of *Fagus*, *Acer*, *Quercus* and *Betula*.
- 2. Northern temperate coniferous species**, such as species from the genera *Cupressus*, *Juniperus*, *Cedrus*, *Picea*, and *Pinus*.
- 3. Woody shrubs** such as species of *Ilex*, *Euonymus*, *Viburnum*, and *Buddleia*. Shrubby species have been eliminated from the data to preserve the 'tree collection' scope of the research. Refer to MacKay (1996) for species lists.

Comparison with Other Tree Surveys: Flook (1994)

The Royal New Zealand Institute of Horticulture's register of Notable Trees Flook (1994), lists less than 20 Auckland trees and is therefore not as comprehensive as the council notable tree schedules. Its listings may be more important in areas where tree protection is less well managed e.g. some rural areas.

3.1.4 Best Represented Genera In Auckland Tree Collections

Table 3.5 Best Represented Genera in Auckland Tree Collections.

Genus	Number of species and cultivars found in collections			Number of species in genus (Brickell, 1999)	% of genus in Auckland collections	Largest genus collection
	Total	Species	Cultivar	Number	%	Location
<i>Magnolia</i>	122	27	95	150	18	ARBG
<i>Prunus</i>	74	23	51	200	12	ARBG
<i>Acer</i>	59	28	31	150	9	ARBG
<i>Eucalyptus</i>	51	51	0	500	10	Cornwall Pk
<i>Metrosideros</i>	46	17	29	50	34	ARBG
<i>Pinus</i>	44	39	5	120	33	ARBG
<i>Cupressus</i>	28	11	17	24	46	ARBG
<i>Podocarpus</i>	21	15	6	100	15	ARBG
<i>Betula</i>	24	19	5	60	32	ARBG
<i>Salix</i>	13	8	5	300	3	Street
<i>Sophora</i>	22	10	12	50	20	ARBG
<i>Malus</i>	21	9	12	35	26	ARBG
<i>Quercus</i>	18	17	1	600	3	ARBG
<i>Picea</i>	17	8	9	30-40	20-27	ARBG
<i>Populus</i>	16	9	7	35	26	Street
<i>Ficus</i>	15	13	2	800	2	ARBG
<i>Fraxinus</i>	14	10	4	65	15	ARBG
<i>Cordyline</i>	13	7	6	15	47	Oratia
<i>Erythrina</i>	12	10	2	100	10	ARBG
<i>Robinia</i>	11	2	9	20	10	ARBG
<i>Gleditsia</i>	10	3	7	14	21	ARBG
<i>Michelia</i>	10	7	3	45	16	ARBG
<i>Araucaria</i>	9	8	1	18	44	ARBG/ Domain
<i>Aesculus</i>	8	5	3	15	33	ARBG
<i>Acacia</i>	8	8	0	1100	< 1	Manukau/ Street
<i>Phoenix</i>	8	8	0	17	47	ARBG
<i>Agathis</i>	8	8	0	13	61	ARBG
<i>Archhontophoenix</i>	5	4	1	2	Inconsistent (200)	ARBG
<i>Phyllocladus</i>	4	4	0	5	80	Cornwall/ Oratia
<i>Bauhinia</i>	6	6	0	250	2.4	ARBG
<i>Tilia</i>	5	4	1	20-45	20-9	ARBG
<i>Abies</i>	5	5	0	50	10	ARBG
<i>Brachychiton</i>	4	4	0	30	13	Domain

Table 3.5 shows the genera with the highest numbers of species and cultivars reported. It is likely that some smaller genus groups are also well represented. The decision to restrict this results table to those genera with more than 4 taxa represented may mask the significance of smaller specialised collections. An anomaly is obvious between the *Archontophoenix* species reported by collection managers and the number of species reported by Brickell (1999). Triangulation with Boyer (1992), reveals that there are two or more species yet to be described. This suggests that the species reported represent a full 100% representation of species.

Table 3.5 shows that the most highly represented genera found were *Archontophoenix* with full species representation, *Phyllocladus* with 80% species representation, *Agathis* with 61%, *Cordyline* and *Phoenix* with 47%, *Cupressus* with 46%, and *Araucaria* with 44%. The Auckland Regional Botanic Garden holds the largest genus collections of most of the numerically best represented genera in Auckland. Other specialist genera collections identified include Cornwall Park with the largest *Eucalyptus* collection and an equal number of *Phyllocladus* species as Oratia Native Plants, which has the largest collection of the native genus *Cordyline*. The Auckland Domain has the largest collection of *Brachychiton* and the same number of *Araucaria* as the Auckland Botanic Garden. Auckland City street trees have the most *Populus* and *Salix*, and Manukau street trees the most *Acacia*, but they are very few as a percentage of the species in these genera. Future research could further analyse the genetic variability of these generic collections by investigating the presence of a range of taxonomic accessions.

Auckland Regional Botanic garden is therefore found to be the largest tree collection in Auckland, and to have the most specialist genera collections of the the 36 genera considered.

3.1.5 Best Represented Families in Auckland Tree Collections

Table 3.6 Numerically Best Represented Families in Auckland Tree Collections

Family	No of Taxa In Auckland Collections
Myrtaceae	141
Magnoliaceae	136
Fabaceae	107
Cupressaceae	106
Rosaceae	94
Pinaceae	71
Aceraceae	58
Aracaceae	48
Podocarpaceae	35
Fagaceae	34
Betulaceae	34
Salicaceae	30
Oleaceae	24
Taxodiaceae	23
Ulmaceae	21
Moraceae	19
Agavaceae	18
Lauraceae	17
Aracauriaceae	16
Proteaceae	15

The families with the highest numbers of species represented in Auckland collections shown in **Table 3.6** are Myrtaceae, Magnoliaceae, Fabaceae, Cupressaceae, Rosaceae, Pinaceae, Aceraceae, Aracaceae and Podocarpaceae. Many of the species reported from these well represented families are of warmer climate origins. This result is congruent with the warmer climate and high rainfall of Auckland. MacKay's survey did not include all these families as they were outside her research focus.

3.2 Tree Character: Origins, Sources and Trade Availability

3.2.1 Origins

Auckland's climate gives Auckland managers the opportunity to grow trees from many parts of the world. **Figure 3.2** illustrates that the southern-

hemisphere continents of Africa, South America and Australasia make up 32% of the Auckland tree origins. Northern Hemisphere continents of Asia, Europe and North America make up 42%. A factor which elevates the northern hemisphere percentage is the fact that South East Asia is included in the Asian figure of 23%, and therefore reduces the accuracy of the figure, as these trees are from the southern hemisphere. A large percentage (27%) of the trees are of horticultural origin. Horticultural origin refers to cultivar and hybrid trees, which have been selected, or bred for amenity or productive purposes. Further analyses would reveal the species origin of cultivar trees, but hybrids may be from two parents of different origins and should stay separate. This accounts for the large percentage of horticultural origin in relation to the other origin percentages. One quarter of the trees are of Australasian origin, including 10% New Zealand natives. There are less northern temperate trees, and more native trees surveyed in Auckland than in Mackay's national survey (1990), but this is largely due to the northern temperate focus of that survey.

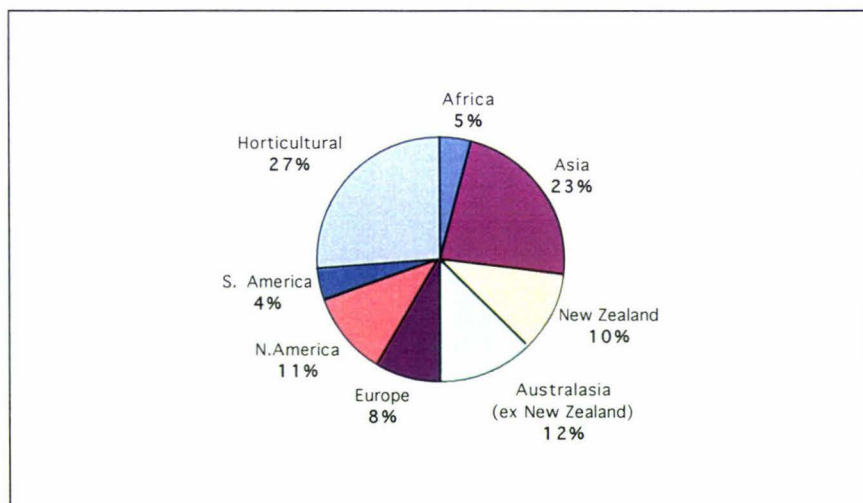


Figure 3.2 Origin of Tree Species in Auckland Tree Collections.

3.2.2 Sources

Very few collection managers were able to provide data on the source of their plant material. Those who could were the managers of the scientific collections at the ARBG and the University of Auckland were able to give plant sources, along with some of the nursery collection managers.

3.2.3 Trade Availability

Analysis of the availability of tree species and cultivars from commercial nurseries using Gaddam (1999) showed that 44% of the trees were available from more than three commercial sources in New Zealand, 31% were available in less than three nurseries, and 25% were not available from commercial sources included in the Plantfinder (Gaddam, 1999). These results are shown on **Figure 3.3**, but the accuracy is limited by the restricted range of nurseries included in Gaddam's book.

Species and cultivars may be considered at risk of unavailability when available at less than three nurseries, according to the British Plant Collection Scheme (Lowe, 1988), due to the possibility of incorrect naming, plant loss, death or decline of the reported plant stock. 56% of the trees found in Auckland collections can be considered unusual and not available in commercial trade. This second group of trees may be considered important specimens as examples of plant growth and form, and as sources of propagation material.

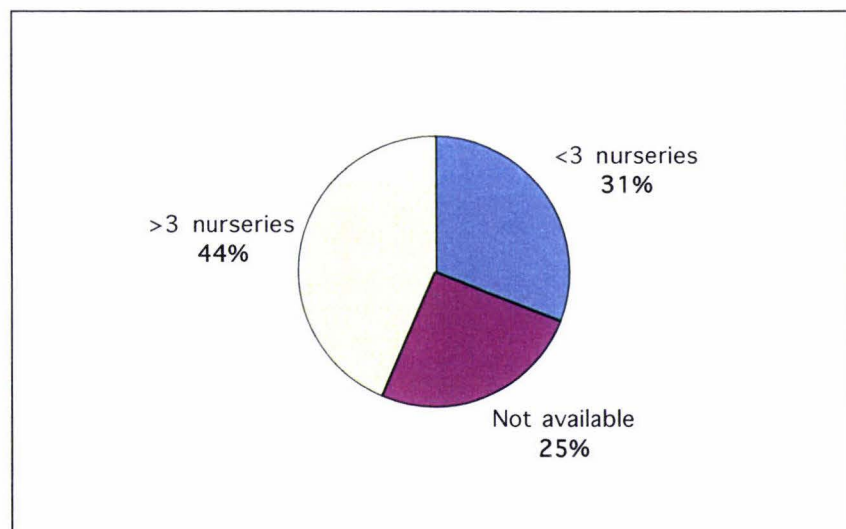


Figure 3.3 Species Availability in Nursery Trade (Gaddam, 1999)

These results raise the issue of the nursery trade and plant collection manager's role and responsibility in the preservation of germplasm that they sell to the public or collect. The three nurseries surveyed in this research maintain active plant collections on the nursery sites. Nursery professionals who plant and manage collections of the plants they sell provide some sense of germplasm preservation for the future. An example of best practice in Britain is Hillier's

Nursery, which has established an extensive arboretum for public use and education. Oratia Nursery in Auckland has developed a comprehensive native plant selection guide to assist its customers to select the right plant for the situation at hand. The Auckland Regional Botanic Gardens has a plant sale to the public once a year. This activity may result in some uncommon plants being grown in gardens. These examples of best practice are ones other nursery and plant collection managers may be challenged to emulate. Plant collection managers are also well advised to make plant material available to other collections to ensure a stable population and wide geographic spread of provenance and germplasm stock locations where possible.

3.3 Collection Character: Age, Types and Distribution

3.3.1 Age

Only six collection managers provided age data for their trees. These were collections 120, 146, 142, 149, 137, 139, and 174, i.e. The ARBG, UNITEC, MARC, Eden Garden, Collection 137, Oratia Native Plants, and Highwic house. This led to the inclusion of question 12 c) in the management questionnaire, asking managers to estimate the percentage spread of tree maturity in their collection.

3.3.2 Collection Ownership

During the biodiversity data analysis stage, certain similarities in management practices were identified, which were potentially related to collection ownership types. For example the information records for private collections seemed generally less well documented than other collection ownership types.

Two types of collection ownership were identified:

- Public - local territorial authority and government departments, for example, research institutes and educational institutions.
- Private - commercial nurseries, private residences and private trusts.

Table 3.7 shows that species data was received for 21 local territorial authority collections, 7 public collections and 10 private collections (4 of which are

nurseries). This classification of collection ownership type is brought forward for the analysis of management practices results in Chapter 4.

Table 3.7 Tree Collection Types

Collection Types	No of Collections	Collection Codes*
Public		
Local Territorial Authority	21	120, 138, 143, 144, 147, 148, 151, 152, 153, 154, 155, 156, 158, 167, 168, 169, 170, 171, 172, 178, 181
Central Government Depts	7	139, 142, 146, 149, 173, 174, 176
Private		
Individuals or trusts etc.	6	141, 145, 157, 163, 175, 183
Nurseries	4	137, 140, 160, 161

*(*refer to **Table 3.1** for complete collection code index)*

3.3.3 Collection Locations

Another reflection generated by analysis of the biodiversity data set relates to the locations of the Auckland collections surveyed. These are shown on the aerial photo inside the back cover of this thesis. It shows that some collections are isolated, whereas others are associated with other open space or collections. Where collection sites are small and isolated, such as the Mt Albert Research Centre, Waiata Reserve, and Alberon Park, they tend to have lower public use. Larger isolated collections, such as the ARBG, provide sufficient visitor values and facilities to attract large numbers of visitors. Collections which are clustered together e.g. Western Springs Park and the Auckland Zoo, compound their attraction in their close proximity, providing a wider range of landscape values and facilities on adjacent sites e.g. a family zoo visit may be linked to a bike ride or picnic at Western Springs Park. A field trip visit to the plant collections at Albert Park and the University of Auckland is made more attractive due to their proximity. From personal experience, visit organisers also consider the availability of associated facilities positively, such as toilets and food outlets. A link may be identified between these open space associations and the Auckland City marketing designation of 'premier' park.

Both Western Springs and Albert Park are parks with high landscape value, have other open space associated with them, and provide visitor activities and facilities on site, or nearby. They both attract high numbers of visitors and are designated as 'premier' parks. These examples provide evidence to support the notion of linking recreational opportunities around Auckland, as Olmsted did in Boston (Smith & Hellmund, 1993). Waitakere City Council can be seen to be the council most advanced in demonstrating principles of urban ecology and conservation. They have identified ecological linkage zones in their district planning analysis, and provide a guideline for residents to assist in selecting appropriate native species for garden plantings. This guideline was prepared by Lucas Associates (1997) and is based on thorough analysis of the local native flora. Revegetation projects are being continuously planned and implemented by council staff (Chris Ferkins, Waitakere City Council, personal communication, February 1999). Auckland City are also undertaking an ecological study of past natural flora. There is of course less evidence to analyse in Auckland City, due to more intense urbanisation in the inner city area. Auckland City have also commissioned a City Tree Plan, prepared by Boffa Miskell Associates, which sets policy and procedures for strengthening the Urban Forest within its boundaries. Recreation and cultural values are well catered for in facilities and activities provided in the parks of Auckland City. Of particular note is the intention to develop a new arboretum. Auckland City can be seen to have a high commitment to the human use values of its Urban Forest. North Shore City is in a phase of very fast growth and development. New parks have been set aside, some with significant tree biodiversity e.g. Centennial Park, but little other evidence of urban ecological planning being implemented.

The collections surveyed represent several of the components of the Urban Forest described in American literature (Grey, 1996; Miller, 1988) e.g. parks, reserves, private gardens, state owned facilities and street trees. Using this model, regional planners are able to put aside land-ownership and territorial local authority boundaries, as recommended (Clark *et al.*, 1997; Grey, 1996; Miller, 1988), and strategically plan for the urban vegetation collectively, as can be contemplated from the aerial photograph in **Map 1.1**. A regional approach

could analyse these collections along with the vegetation contributed by Auckland's large tracts of native forest in the nearby Waitakere ranges, and pine plantation forest at Riverhead, but also important urban greenspace vegetation. There are areas of vegetation within suburban areas along transport corridors of the state highways 1 and 16 and the main trunk railway lines and north-western line to Waitakere. Rivers and creeks provide further green linkage throughout the city. The urban forest concept enables this matrix or web of vegetation and open space to be planned for the region (rather than particular local authority boundary areas) providing multi-purpose greenways with both ecological and human-use benefits (Cook & van Lier, 1994; Lewis, 1990). This finding supports the regional planning of the distribution of urban vegetation to maximise biological and human use outputs.

Chapter 4: Results: Management Survey

4.0 Introduction

This section records and discusses the results found in the management survey. There were 12 managers involved in the survey. The results are presented according to the order of questions in the survey questionnaire. Q.1 refers to question 1 of the survey. Major discussion points will be revisited in Chapter 5. The survey and accompanying letters can be found in **Appendix 5**.

To test the hypothesis that collection type affected or had an influence on management practices, responses to questions about collection age, management planning, public consultation methods, collection components, information management systems, biodiversity indicators, perceived threats to biodiversity, access to professional consultants, and attitude to tree regulations and legislation were analysed.

When compared using contingency table statistical analysis (Minitab and SAS packages) responses to relevant questions 2, 5, 7, 8, 9, 10, 11, 12, 13, 14 and 15 showed no statistically significant difference between the sets of responses. The small sample size of twelve resulted in some frequency counts of less than five, therefore the sample statistic may not approximate the theoretical Chi square distribution very closely (Harrison & Tamaschke, 1984). Extrapolation of observations made about the data for this group of collections is therefore not supported statistically.

The null hypothesis was therefore supported, e.g. that management practices were independent of collection type. There was no significant difference between responses from private collection managers and managers of other collection types in Auckland. The results in this chapter are however reported according to ownership type for the reader's interest.

As described in Chapter 2, Auckland City council parks are reported as one collection, as are DOC managed collections.

4.1 Tree Collection Ownership

Q.1: Please indicate which type of tree collection you identify your collection with.

Four respondents out of the twelve respondents managed privately owned collections (33%) and eight managed publicly owned collections (66%). Of the publicly owned collections, three are local authority and five state owned. Refer to Chapter 3 for collection codes for each ownership category.

4.2 Collection Age

Q.2: How many years ago was this collection started?

Table 4.1 Age of Auckland Tree collections

Collection Age	No of Collections	Collection Codes		
		Type of Collection		
		Private	Terr. Auth.	Public
> 100 years	4	157	Parks	DOC, 173
75-100	3	141	Parks	DOC, 146
50-75	2	-	156, Parks	-
20-50	4	145, 149	Parks	142
0-20	3	137	120, Parks	-

Tree collections have been in existence in Auckland since early European settlement more than 100 years ago. **Table 4.1** shows that new collections have been started in each quarter century since then. Lime trees (*Tilia cordata*) in Princes St. near the University, planted in 1870, are reported to be Auckland's first street trees (Bryan Gould, Auckland City, personal communication, July 2000). Further accounts of historic plantings are recorded by Cameron *et al.*(1997).

To have a sustainable urban forest, it is essential that trees reaching senescence are replaced with new trees (Bradshaw *et al.*, 1995; Grey, 1996). This will become more critical as the tree plantings of Auckland's city founders reach maturity, and begin to decline. This suggests that ongoing planning of tree plantings is

required. This is supported by comments from Auckland City Arborist Bryan Gould. He reported that 2000 trees are planted each year in Auckland City, and there is visual evidence of this under-planting programme in most large Auckland park collections visited. Smaller private collections 141 and 163 show little evidence of tree replanting programmes which puts them at risk in the long term. Two possible reasons for the lack of replanting are a lack of strategic planning or a lack of resources to enable a replacement planting programme.

4.3 Collection Goals

Q.3: Does the collection have identified and documented goals?

Table 4.2 Presence of Collection Goals

Response	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Identified but not documented	11	137, 141, 145, 157	120, 156, Parks	DOC, 142, 146
Yes	6	-	120, Parks	DOC, 142, 146, 173
No	6	149	156	-

(*refer to Table 3.1 for complete collection code index)

As shown in **Table 4.2**, almost all the Auckland Tree Collection managers reported having identified goals for their collections, but only half had documented those goals. Five out of the six collections without documented goals are privately owned, and one is publicly owned. Documented collection goals have been shown to support robust management systems. Clear goals also aid staff and visitor education and collection promotion. Lack of documented goals hinders strategic management and creates the risk that the goals will be forgotten as staff change, which is a greater threat for smaller collections with low numbers of staff. This is the case with many private collections. Bids for adequate resourcing are also strengthened by evidence of successful strategic management achieving documented goals.

Q.4: If 'Yes', what are those goals:

Table 4.3 Goals of Auckland Tree Collections

Goals	No of Collections	Collection Codes		
		Private	Terr. Auth.	Public
Amenity Value	5	141	120, Parks	142, 172
Education/ Demonstation	4	137	120	142, 173
Protect/Improve Collection	3	145	120	142
Propagation	2	137	-	173
Maintenance	1	-	-	146
Preserve Heritage value	1	-	-	DOC
Sustainable water catchment	1	141	-	-
Provide Shade	1	-	120	-
Preserve Landscape values	1	-	Parks	-
Improve Inventory records	1	-	-	146

The goals recorded and shown on **Table 4.3** represent a range of the landscape management goals found in the literature. Amenity value was the most common goal recorded, followed by education/demonstation goals. Protection, preservation, conservation and development were all reported to some degree, although not with the same priority as given in the literature reviewed in Chapter 1. The managers surveyed also focussed on pragmatic concerns such as providing shade and improving inventory. These results illustrate the different managers priorities for their collections within the range of strategic and operational goals reported. This highlights the tension between strategic and operational goals for collection managers.

Some simplification of goals stated by managers has occurred in **Table 4.3**. A clear example of this is where a manager gives a goal as "to care for and respect

the heritage we have inherited". These terms are not used in the literature, but 'care for and respect' have a similar meaning to protect or preserve. The survey revealed the lay terms the managers use naturally, which would not have been revealed if the survey had defined the terms.

The most common goal recorded was providing amenity value for human use. The term 'amenity value' used by managers is fairly broad. It may encompass visual, recreational or psychological human values. It is a term used in the Resource Management Act (1991). There, in Part 1, it is defined as:

those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

Interestingly it is the term 'amenity values', which the McShane report (1998) recommended removing from the scope of the Act. This deletion would clearly undermine the goals of Auckland tree collection managers and therefore threaten their status under the law. Pressure from redevelopment would become more difficult to contest, if amenity value was no longer recognised under the RMA.

Protection and enhancement of the plant collection itself, and of other landscape values came second, along with providing a source of plant propagation material. One manager alluded to the concept of sustainability, e.g. watershed management goal, which suggests knowledge of and commitment to the concept. The managers commonly listed two or three goals. These seldom provided a comprehensive set of goals for the collection. It was found that one manager did not record the goals listed in their management plan, which may indicate a lack of ownership and implementation of the plan, or perhaps just being busy. This result can be interpreted as a lack of understanding of the concept of landscape goals, or as a mismatch of the terms used at the broad legislative level with the terms used at the site specific level.

The reported goals clearly have a relationship to the models of landscape management goals found in the literature (Hitchmough, 1994; Jubenville & Twight, 1993). The goals that collection managers reported for their collections concentrated more on providing for human use, rather than the biodiversity resource. This may reflect their visitor focus, and the importance of the cultural values of the collection sites, but the biodiversity and other site values must also be protected for the site to continue to allow the human uses.

The Auckland Regional Botanic Garden lists four goals for the gardens in order of priority – recreation, education, conservation and scientific research (Auckland Regional Council, 1995). In placing recreation as the first priority goal, the managers reflect the importance funding allocation managers place on human use. Ministry of Education funds contribute to education programmes at the botanic gardens, supporting the programmes enjoyed by the many school children visiting the gardens each year. The latest development at the Auckland Regional Botanic Gardens is a 'Threatened and Endangered Plant Garden' for which the outgoing National government gave one million dollars funding, two days before the last election. These funding factors contribute greatly to the decisions made by botanic garden collection managers when deciding what plants to conserve or collect, and what balance of values is appropriate for the collection.

4.4 Management Plans

Q.5: Is there a management plan for this collection?

Table 4.4 Management Plans in Auckland Tree Collections.

Response	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Yes	*5	137, 157	120, Parks	DOC
No	4	141, 145, 149	156	-
In Progress	5	-	Parks	DOC, 137, 142, 146

** includes all the parks and reserves of Auckland City Council for which there are individual management plans but considered here as one collection.*

As shown in **Table 4.4**, over a third of managers reported having management plans in place for their collection, with a further five managers reporting a plan being in progress. This gives a majority of managers using management planning to some degree. The collections for which there is no management plan are mostly smaller collections under private ownership. It is surprising to reveal that some public collections (e.g. collection 156 and some DOC collections), which are required by law to prepare management plans, do not have a management plan in place. One manager recorded no management plan, but admitted to 'having one in the bottom drawer' at a follow-up interview. That manager listed different goals to those listed in the management plan for his collection, even though he was aware of its existence. This may indicate a lack of understanding about the nature of a management plan and its contents. It also illustrates the importance of staff involvement in the preparation of management plans, to allow develop understanding and ownership of the strategic goals by staff, and a commitment to working towards the goals set in the management planning process. Some additional research into the number of parks and reserves management plans held in public libraries found nine management plans available for Auckland City parks or reserves. These included plans for Symonds St Cemetery, Pt England Reserve, Ngahwe Reserve, Albert Park, Churchill Park, Western Springs Park, Newmarket Park, The Domain and One Tree Hill. A wide range of park management plans were available for North Shore City. Waitakere City did not have any management plans on one of its library shelves. All management plans are required to be available to the public.

Public collection managers who had a plan in progress indicated an in-house rather than commissioned plan. The literature suggests that management planning is a specialist skill (Bromley, 1994), which raises a question as to the knowledge and skills of the staff involved. Consultants should be used where appropriate staff are not available, as investigated in Question 14. At Auckland City Council, Paul Wilson (Auckland City Open Space manager, personal communication, January 2001), suggested that there were staff on the council qualified to prepare management plans, as expertise in landscape architecture, planning and resource management was available. Discussion revealed that the

move towards in-house projects was also to reduce the amount of complicated data gathering and analysis undertaken, and also to reduce the high cost of engaging consultants to prepare the plans. Another possible approach to achieving cost-effective and simple management plans would be to develop a pro-forma management plan template for parks or other collection types which could be adapted for different sites. Management planning must always include thorough analysis of landscape values, by well qualified personnel, to ensure an adequate platform for strategic goal setting is established.

Q.6: If there is a plan, what are the factors, which limit the effectiveness of the management plan?

Table 4.5 Factors which Limit the Effectiveness of Management Plans

Threats	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Budget	4	-	156, Parks	DOC, 146
Staffing	4	137	156, Parks	146
Politics	2	-	Parks	DOC
Climate Change	1	157	-	-
Plant Health	1	157	-	-
Public Intrusion	1	157	-	-
Inappropriate Plant Selection	1	157	-	-
Community Attitudes	1	-	Parks	-
Lack of Support	1	-	-	142

Only six out of twelve managers responded to this question (3 did not have management plans). All the respondents reported a lack of either budget or staffing resources as the main factor limiting the effectiveness of management plan implementation, as shown in **Table 4.5**.

Three managers reported cultural influences such as lack of support from the key stakeholders, whether they were politicians, management hierarchy or the

public, limited the effectiveness of management plans. These answers support the interactive systems model proposed by Jubenville and Twight (1993). They confirm the effect of the external environment on a landscape management system and confirm the importance of goal setting processes for public resources to ensure understanding and ownership within management hierarchies.

Other limiting factors included environmental effects such as drought seasons or storms which blow trees over and increasing average temperatures which change the growing environment; pest and disease problems such as cabbage tree decline; inappropriate plant selection in the past causing plant health problems.

Lack of resources makes strategic planning even more important in terms of prioritising how the limited budget and staffing should be allocated. An example may be where purchasing plant labelling is an important tool for visitor education, but strategically replanting programmes or plant protection may be a higher priority, if preserving the collection is a higher strategic priority than visitor education. Management is certainly easier if the collection is well resourced, but when funds are limited, thinking and acting strategically become even more important. Priority setting according to strategic goals ensures the most important things have top budget priority and shortfalls effect less strategically important items.

These results support the collection operating environment components suggested in the landscape management model proposed in Chapter 5. Staff and budget resources, climate and site factors, and the political and organisational milieu, all have an effect on the landscape management system, as confirmed by the manager responses.

Q.7: How is public interest and comment integrated into management planning for this collection? (multiple methods reported)

Table 4.6 Public Input Mechanisms for Auckland Tree Collections

Input	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Feedback to Staff	6	137, 141 149, 157	156	173
Consultation when Developing Management Plan	4	-	156, Parks	DOC, 146
Questionnaires	3	157	Parks	173
Community Representative on Board	3	-	120, Parks	DOC
N/A	2	145	-	142

Table 4.6 shows that half the managers reported that public feedback was gathered through comments to staff. Most private collection managers relied on this passive method of receiving public feedback. Public collection managers and local authority managers drew on a wider range of actively gathering public input. Collection 157 stands out as the only private collection to use both passive and active methods of data gathering. Of all the managers, three used questionnaires or surveys to gauge public opinion, three had community representation on their boards, while four consulted the public while developing their management plans. Two managers reported that they did not aim to receive public input. One did not see his target audience as the general public, and so sought input from only that specialised scientific target audience. The other made no other comment to allow interpretation. Questionnaires were used only at public and territorial authority collections. This may be because they view public input as a tool to demonstrate goal achievement and therefore supporting continued budget allocation. Private collections relied on public comment to staff for input, or did not seek input.

None of the managers reported using volunteer or 'Friends' groups. There is strong evidence available that 'Friends' groups are in existence at Eden Gardens

and ARBG. This may indicate managers who do not value the input of these groups highly, or simply that their job descriptions do not bring him in contact with the 'Friends' group. As volunteer and 'Friends' groups are an effective way of establishing a group of educated public to contribute to the landscape management process, it is surprising not to find more of these groups used. The importance of public input and ownership, both in avoiding damage and vandalism, but also in voluntary labour input, is reported in the literature (Chapter 1). Best practice relating to public input is an important topic in collection management professional development.

Q.8: What are the elements that make up this collection?

Table 4.7 Elements of Auckland Tree Collections

Elements	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Plant Collection	12	All	All	All
Library	6	149, 157	120, Parks	142, 173
Nursery	6	137, 149, 157	120, Parks	142
Inventory	4	-	120, Parks	146, 173
Laboratory	1	-	-	173
Herbarium	1	-	-	173

* ARBG uses Auckland Museum herbarium

As shown in **Table 4.7**, half the collections surveyed had libraries and half had nurseries. One quarter had inventories of their collections. Only one collection had a laboratory and one had a herbarium, although the Auckland Museum herbarium was used extensively by the ARBG. The University of Auckland collection has a wider range of facilities than the Auckland Regional Botanic Garden. This is largely due to its scientific, educational and research function for the University of Auckland's Biological Sciences department. The survey question could have been improved by including a quality statement about

each collection element e.g. being more specific as to the standard of library or nursery present. This would have enhanced the meaning of the results.

The standards of plant collections in Auckland, in terms of the elements they contain are not high by American standards shown in **Table 1.1**. Only the University of Auckland has the three key collection elements of plants, herbarium and laboratories, which means it meets the criteria for a State or University Botanic Garden or Arboreta. None of the other collections meet these criteria, which excludes them from being considered State or University Botanic Garden, or Government or University arboreta. American state-funded private botanic gardens are also required to have the three elements. It is the herbarium and laboratory components which are most obviously lacking in Auckland collections. Only the University of Auckland is equipped to do lab-based research, although field-trial research is being carried out at both UNITEC and ARBG. UNITEC has a new plant science laboratory planned for 2002. Research funding is gained for this research which provides a positive contribution to these organisations, and therefore at least indirectly to the collections. Half the collections have libraries and half have plant nurseries. All the collections open to the public meet the criteria for municipal botanic gardens or private arboreta. These results do not demonstrate a high level of scientific and research activity in plant collections. They may indicate that other roles such as recreation are given priority for funding or political reasons.

Some budget innovations are apparent in the management of Auckland collections. Sharing of scientific resources has been achieved in some cases, which does mean collection managers have use of facilities even though they are not part of their own collection. The Auckland Regional Botanic Garden uses the Auckland Museum herbarium as an accessions record. So although Auckland collections do not have all the components of a high standard plant collection, there are ways in which managers compensate for this in sharing facilities, and some new facilities are in the planning stage.

Budget constraints and a lack of understanding as to the importance of particular facilities is the likely reason for the lack of facilities for plant collection managers. Budget versions of facilities include a shelf of botanical books and makeshift propagation facilities, which managers develop on a small budget. Buying in plant material is more cost-effective for tree collections than for other plant collection types such as herbaceous perennials, as low volumes of tree material are required once the collection is established. This is not true however for large collections or collections which include other plant types such as the University of Auckland or Auckland City Parks. Convincing financial managers of the priority for plant collection facilities relies on the manager's ability to sell or market the collection values and benefits and demonstrate the achievement of the collection's strategic goals. General lack of facilities is evidence of the need for broadly educated plant collection managers who are able to secure budget resources through marketing to budget control managers.

There is no agency monitoring plant collections and botanic gardens in New Zealand. This results in a lack of outside analysis or strategic planning for plant collections generally, and botanic gardens specifically. The establishment of such a body is highly recommended and possible options will be discussed in Chapter 5.

4.5 Tree Types

Q.9: What tree types are represented in this collection?

Managers were asked to indicate the categories of tree types represented in their collections. No definitions of these tree types were included.

Table 4.8 Tree Types in Auckland Tree Collections

Tree Type	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Native	11	137, 141 149, 157	120, 156, Parks	DOC, 142, 146, 173
Sub-tropical	11	141, 145, 149, 157	120, 156, Parks	DOC, 142, 146, 173
Southern Hemisphere	11	137, 141, 149, 157	120, 156, Parks	DOC, 142, 146, 173
Palms	10	141, 145 149, 157	120, 156, Parks	DOC, 146, 173
Northern Hemisphere	9	141, 149, 157	120, 156, Parks	DOC, 146, 173
Off-shore Islands	1	-	-	142
Sub-tropical (fruiting)	1	-	-	142

Table 4.8 shows seventy five percent of collection managers reported having 'all' tree types listed. Three collections specialised in a more limited range of trees. One collection specialised in off-shore island natives and sub-tropical fruit trees, one in New Zealand natives in general, and one in palms and sub-tropical trees. No collections reported specialising in Northern hemisphere trees, even though some collections contain a predominance of these trees. This may indicate a cultural acceptance of northern hemisphere as a 'normal' part of the amenity treescape of Auckland, rather than a feature worthy of special note.

An analysis of the six largest collections shows agreement between the managers analysis and tree species origin pie charts analysis. Most of these managers have access to plant information systems that can easily provide such analysis. This is a validating check on the managers' access to knowledge of species origins. As the six largest collections all use computerised plant inventories, the results supports the hypothesis that the managers with computerised plant information systems have ready access to species information about their collection.

4.6 Information Systems

Q.10: How is tree information documented and maintained for this collection? This question allowed for multiple answers.

Table 4.9 Plant Record Systems for Auckland Tree Collections

Method	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Memory	7	137, 141, 145	156	DOC, 137, 142
Species List	7	141	156, Parks	DOC, 142, 146, 176
Archival material or Historic Documents	5	157	Parks	DOC, 142, 173
Database or Spreadsheet Records	5	157	120, Parks	146, 173
Tree maintenance Inventory	4	157	Parks	146, 173
Asset Register	2	149	-	146
Herbarium	2	-	*Parks	173
Other (Landscape Plan)	1	137		

*ARBG uses Auckland Museum herbarium

As shown in **Table 4.9**, three private collection managers reported relying solely on memory for plant record keeping. However collection 141 in fact has a species list in its management plan. Half the collection managers surveyed use only manual information systems for keeping records. Only two used herbaria. Just under half use one or more forms of computerised plant information system, described below. Four use tree maintenance inventories and two reported using asset registers.

The managers who used computer information systems were generally the managers of larger collections rather than managers of the smaller collections. Six of the eight largest collections have computerised information systems. The University of Auckland uses the most specialised records systems known as BGCI database system (Leadley *et al.*, 1993), and ARBG uses a similar Inmagic database system. Both are specifically developed for botanic gardens. They use the International Transfer Format for Botanic Garden Plant Records (ITF), which enables plant records from around the world to be compared and monitored. Three managers reported using spreadsheet systems e.g. Excel, which is flexible and compatible with Microsoft databases such as Access.

Asset registers are being used by large institutions and businesses to document, classify, value and therefore manage a wide range of assets. Tree records are included in asset register templates and are being used by default rather than design in some organisations. For example UNITEC has collected data on tree species to be included in its asset register, rather than choosing the asset register as an ideal tree database system.

One more manager recorded using an inventory in Question 8 than here in Question 10, where only three managers reported using a tree maintenance inventory. The one manager in the earlier question may have not understood that an inventory should include tree maintenance data when answering Question 8. This analysis highlights the need for clear survey terminology definition but also differences in manager knowledge levels. Managers with high levels of landscape and plant collection management theory and practice

are in a better position to take advantage of opportunities in areas such as technology and networking.

As plant record systems underpin management systems and provide information essential for strategic collection management, it is important that managers use and understand appropriate plant record systems.

4.6.1 Information Categories

Several collection managers provided their species lists from their plant records information system rather than filling out the survey forms. Plant inventory systems such as the one used by collection 157 provide the seven categories of information listed in a basic tree inventory, i.e. species list, species count, size, condition, age or maturity, location and maintenance record. Specialised databases such as Inmagic and BGCI - BASE, used by collection 120 and University of Auckland respectively allow the entry of large amounts of plant information to be stored e.g. Inmagic has 53 fields (see **Appendix 3**). Both of these databases use International Transfer Format for Botanic Garden Plant Records (ITF), enabling transfer of data to either Botanic Garden Conservation International (BGCI) or the World Conservation Monitoring Centre. Plant record systems are evaluated in terms of ITF provision in **Table 4.10**. Asset Registers such as used by collection 146 provide a species list and a keyed location map. Management Plans such as used by collection 148 provide a species list and a keyed location map. The archival material and lists systems usually included a species list. This was often incomplete and out of date. Notes about the location of trees or rough maps were sometimes available (Collections 156, 142, and 181). The managers often apologised for not being more up to date. Memory records are inaccessible to anyone besides the manager and put the information at great risk of being lost. Database systems which recorded genus and species names in separate columns were shown vulnerable to the names becoming scrambled, producing the anomalous names listed at the end of **Appendices 3** and **4** (Collection 173). This is obviously undesirable, and so keeping botanical names together in one column can be seen to be desirable.

Table 4.10 summarises the categories of information recorded in the different types of information systems sent in. An example of a collection which used the types of information system is recorded, along with whether the system is compatible with International Transfer Format (ITF).

Table 4.10 Information Provided by Plant Record Systems.

Type of information system	Collection Code (example)	Information provided	ITF
Inventory	157	All basic categories* provided	No
Asset register	146	Species list and location info	No
Landscape plan	137	Species list and keyed map	No
Memory, lists, archives	141	Species lists plus a variety of piecemeal records	No
Specialised databases e.g. BGCI-BASE	173	All basic categories plus more detail	Yes

*basic categories of an inventory are listed in section 1.6.2

Managers who have computerised plant information systems recording many categories of information were more likely to answer the survey questions accurately than those with manual or less sophisticated computer list systems e.g. species origin information asked for in the previous question. Information-rich information systems therefore contribute to a high degree of collection manager knowledge. Monitoring of collection biodiversity, plant performance and health, and maintenance are made possible by using structured plant records systems such as the inventories and specialised database systems used by managers of Auckland tree collections 120, 138, 173, and 157. The information gathered for the preparation of a management plan is a base platform for an inventory or database. However more intensive data gathering and data entry is required to make full use of the more specialised records

databases. All four collections who use database systems dedicate significant staffing to the maintenance of the system. Such systems are a characteristic feature of successful tree collection management. However none of the managers reported the use of Geographic Information Systems, which is likely to become best practice for large collections and regional tree management in the coming decade.

4.6.2 Records Updated

Q.11: How regularly are these records updated?

Table 4.11 Plant Record Update Frequency for Auckland Tree Collections

Frequency	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Other (continuously)	2	-	120	173
Other (Monthly)	1	157	-	-
Annually	2	149	Parks	-
Biannually	1	-	-	146
Every 5 years	-	-	-	-
Irregularly	2	137	-	DOC
Other (when new area added)	1	-	156	-
Never	2	141, 145	-	-

The regularity of updating records varies widely as shown in **Table 4.11**. The five collections that update records most frequently (i.e. continuously, monthly, or annually) are all large collections with more than one hundred tree species recorded. Thus indicating a clear trend, the larger the collection, the more likely that the collection manager will see a need to manage and update records frequently. Triangulation with **Table 4.9** (Question 10), shows that all the collections that update records most frequently use computer based record systems which enable simple updating procedures. These large collections are both privately and publically owned.

The literature on plant inventories is clear in stating that inventories must be updated regularly to remain useful. The implications for the two collections which never update their records, and the two which do so irregularly, are that the information will be inaccurate and out of date. Tree health and maintenance is not tracked, neither is tree death, removal or replacement planting. Over a period of time the plant information system becomes of less and less use, unless updated. An example was seen at St Kentigern School where species data has not been updated to show that trees have been removed to allow the development of a new school building. The record of biodiversity in that collection has therefore lost its currency. Without a site visit, this inaccuracy would not have been identified. Propagation material of rare species could easily be lost. In this situation territorial authority tree protection regulations become important. The school should have applied (and probably did) for consent to remove the trees from Auckland City, as the trees were more than 6m tall. Council consent records do provide some record of tree removal around the city.

4.7 Biodiversity Indicators

Q.12: Evaluate your collection in terms of the following biodiversity indicators:

Question 12 was aimed at gathering some general data about manager perceptions of their collections. On reflection this data is somewhat superficial for 12b) and d) due to the inability to triangulate with comparative data. It would have higher quality information if terms had been more clearly defined and focussed on data collected and easily assessed from the survey.

Q.12 a) Species diversity (your perception)

Table 4.12 Species Diversity of Auckland Tree Collections

Collection Codes	Managers' Perception of Tree Diversity	Biodiversity Survey Results (No. of Taxa)
<i>Type of Collection</i>		
<i>Private</i>		
137	H	60
141	M	16
145	H	14
149	H	108
157	M	159
<i>Terr. Auth.</i>		
120	H	918
156	M	21
<i>Parks</i>	H	332 (Largest surveyed collection within Parks)
<i>Public</i>		
DOC	M	92 (Largest surveyed collection within DOC)
142	H	74
146	H	91
173	H	194

As shown in **Table 4.12**, two thirds of managers regarded their collections as having high tree species diversity and one third as having medium diversity. Three quarters of the managers thought their collections had high species diversity across all plant types. In order to validate the data from the managers, their perceptions are compared with the total number of tree taxa in the collection. This comparison revealed that five of the eight managers who perceived their collection as having high tree species diversity were in the top ten collections, having more than one hundred species and cultivars of trees and therefore realistically claiming high tree diversity. The other three

managers had smaller but specialist collections with high tree diversity within the narrow focus of the collection such as natives or palms e.g. Collection 145, the smallest collection in the survey with only 14 palm species, reported that the collection had high tree species diversity which may be valid in the limited focus of their collection. Collection 157 is one of the top six collections with 176 species and cultivars of trees, but recorded the tree collection diversity as medium. This may indicate that the manager does not appreciate the importance of the collection on a regional scale, or may have been comparing the collection on a national or international scale. The overall biodiversity perception could not be triangulated as only tree species data was collected. In general the managers gave an estimation of collection diversity relative to the results recorded in Chapter 3 either by overall species diversity or by genus speciality.

Q.12 b) Tree Condition

Table 4.13 Tree Health of Auckland Tree Collections

Tree Health	Collection Codes		
	Maintenance Level for Collection (by Type)		
	High	Medium	Low
High	<i>Terr. Auth. = 120, Parks Public = 173</i>	<i>Private = 137, 145</i>	-
Medium	<i>Private = 157</i>	<i>Private = 149 Public = 142, 146</i>	<i>Private = 141 Terr. Auth = 156 Public = DOC</i>
Low	-	-	-

Table 4.13 shows that five managers reported high tree health in their collection, but only three managers reported a high level of tree maintenance being undertaken in their collection. In analysing the results in terms of age, a prediction was made that it would be the older collections which reported a high level of tree maintenance, while more recently established collections would report lower levels of tree maintenance. In fact there was no correlation between age and maintenance level. The correlation which did become clear

was that the collections with low levels of tree maintenance were also the collections with-out management plans, manual information systems and all three managers apologised for the lack of up- to- date or incomplete tree data at the initial species data survey. Collections reporting a low level of tree maintenance are therefore indicating a lack of effective management of those collections. All the tree collections reporting a high level of tree maintenance also used database or inventory plant recording systems. Therefore the use of inventory or database plant records can be seen to support the systematic management of plant health in tree collection. This result relates to Question 6 and 13. Two of the three collections reporting low tree maintenance identify a limitation of either finance or staffing to their collection management. However the manager for Collection 141 did not report any such limitations, reporting sale or redevelopment of land as the only threat to the collection, and adding that the management of the collection was sustainable. This may indicate a lack of understanding of the maintenance requirements of tree collections, and is certainly a major threat to preserving the collection in the long-term.

Q.12c) Tree Maturity Stage- percentage of total collection

Table 4.14 Tree Maturity Stages in Auckland Tree Collections

Collections	Percentage of trees at different maturity stages			
	Juvenile	Semi mature	Mature	Senescent
DOC	0	0	25	75
141	5	25	20	50
149	10	40	40	10
145	25	25	50	0
157	15	20	60	5
156	20	20	30	30
Parks	Various	-	-	-
120	100	0	0	0
146	30	10	50	10
173	25	25	25	25
142	50	40	10	0
137	20	80	0	0

Managers were asked to report the percentage of trees in different maturity or life phases listed. Their responses are shown on **Table 4.14**. The percentages reported for individual collections relate firstly to the age of the collection and then also to the amount of new planting undertaken since that time. Three managers reported low percentages (10% or less) of young trees. Collection 149 had only 10% of young trees but 40% of semi-mature trees, so would not be considered high risk. Collection 141 had only 5% young trees, with 25% semi-mature, 20% mature and 50% senescent trees. This collection could be considered at moderate risk of reaching a point where a significant proportion of the trees will die, or decline and need to be removed. A replanting programme should be of high priority for this collection. The manager of DOC collections indicated that 75% of the trees in that collection are senescent, 25% mature and had 0% young or semi-mature trees whatsoever. This is an example of poor management for long-term viability of the collection. Recently established collections lacked mature trees, as would be expected. As trees are less tolerant of extreme conditions in their juvenile life stage, the ARBG collection is more vulnerable due to its high proportion of young trees than collections with a range of tree ages. Overall most collection managers reported a healthy spread of tree maturity in their collections. These results provide further evidence of replanting programmes being undertaken, and generally recognised as an essential part of the systematic management of tree collections. Triangulation between tree age data provided in the biodiversity survey in comparison to the managers estimation of maturity spread was not possible due to incomplete data sets received.

Q.12d) Species Rarity

Table 4.15 Species Rarity of Auckland Tree Collections

Rarity	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
High > 10 rare taxa	6	137, 149	Parks	DOC, 142, 173
Medium 5-10 rare taxa	3	-	120, 156	146
Low 1-5 rare taxa	2	145, 157	-	-

As shown in **Table 4.15**, half the tree managers reported that there were more than 10 rare species present in their collection. One quarter reported 5-10 rare trees. One manager was unable to report how many rare tree species are present in that collection.

These results are of dubious accuracy as they rely on the manager's definition of rarity. They should therefore only be used as a general indication of species rarity. A comparison with Jamil (1998) and the World Conservation Monitoring Centre databases may reveal more information on species rarity in Auckland Collections.

4.8 Collection Threats

Q.13: What are the threats to this collection preserving its biodiversity in the medium to long-term? Please rank their importance.

Asking managers to rank the importance of various threats to the collection proved problematic. Some managers ranked all the possible threats listed from one to six, and some indicated high or medium threat. Others only indicated the first and second most important threat. A set rating system of high, medium and low threat would have made these results more easily analysed.

Table 4.16 Primary and Secondary Threats to Auckland Tree Collections.

Threats (1° and 2°)	No of Collections		Collection Codes		
			Type of Collection		
			<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Budget	1°	4	137	156	DOC, 146
(Lack of Finance)	2°	3	149	120	142
Staffing (Loss	1°	3	-	120, Parks	142
of Skilled Staff)	2°	4	137	-	DOC, 146, 173
Climate Change	1°	2	149, 157		
(& Extreme Events)	2°	-	-	-	-
Sale of Land	1°	2	141, 145	-	-
	2°	-	-	-	-
Other	1°				
(Weeds)	2°	2		Parks	DOC
Other	1°	1	-	156	-
(Redevelopment)	2°	1	-	Parks	-
Other	1°	1	-	-	173
(Change of Goals)	2°	-	-	-	-
Lack of Network/ Planning	1°	-	-	-	-
	2°	1	157	-	-

Budget and staffing concerns were most commonly ranked the most severe threat by the tree collection managers surveyed as shown in **Table 4.16**. Secondary threats to the collections were dominated by the same two

concerns. These two threats are clearly the most commonly perceived threats to tree collection management in Auckland.

This result reflects and highlights the widespread restructuring of state and local body organisations over the past decade in New Zealand (Kelsey, 1993). This may have affected managers in public collections more than private collections, although many large corporates have also been restructured. Managers may be reflecting their employment uncertainty in their responses and may also be protesting against the ongoing threats to their positions. Current trends towards increased accountability for funding has also lead to down-sizing of maintenance staff teams, and contracting out of maintenance functions such as lawn mowing and arboricultural services (David Muir, personal communication, October 2000). A downturn in tertiary student numbers in the biological sciences has threatened collections associated with education facilities, where collections and their staff are closely linked to academic funding (Tony Palmer, University of Auckland, personal communication, March 2000).

Climatic conditions, sale of land, redevelopment (due to death of owner) collectively were the next most common threats given, followed by the lack of networking, weed pests or changing goals by management hierarchies. Sustained urban growth in Auckland has put increased pressure on land for more efficient ways to accommodate the growing population. New subdivisions and in-fill housing threaten the Urban Forest both in terms of trees on private properties, and of larger groups of trees on other types of land to be redeveloped (Auckland City, 2000).

4.9 Professional Consultants

Q.14: Do you have access to, and involvement with the following professionals on your management team?

Table 4.17 Professional Consultation for Auckland Tree Collections.

Consultant	No of Collections	Collection Codes		
		Type of Collection		
		<i>Private</i>	<i>Terr. Auth.</i>	<i>Public</i>
Horticulturalist	10	137, 145, 149, 157	120, 156, Parks	142, 146, 173
Botanist	9	137, 157	120, 156 Parks	DOC, 142, 146, 173
Arborist	7	137, 157	120, 156, Parks	146, 173
Other Tree Collection Managers Through Network Organisations	7	137, 157	120, 156, Parks	DOC, 173
Resource Manager or Planner	5	141, 157	156, Parks	DOC
Landscape Architect	4	137, 157	156, Parks	-

Table 4.17 shows that 25% of the collection managers indicated access to all of the professionals listed above. Two thirds of the managers indicated access to three or more types of professionals. All managers except two reported access to horticultural professionals. Public collection managers generally reported access to a higher number of consultants than the private collections. Collections 137 and 157 are exceptions to this. They are larger, well resourced private collections with access to a high number of professionals. These results provide a positive picture of the availability of landscape management consultants for public, and larger private collections, but smaller private collections tend to rely more on current staff expertise.

Tree specialists such as Mike Wilcox (Groome Poyry) and Lance Goffart-Hall (ex-Auckland City) have played a key role in documenting species present in

Auckland's tree collections. Access to such specialists and consultants is made possible by the networking function of organisations such as the Botanical Society of New Zealand, the Plant Collections Network and the Tree Council.

A further question could have been asked regarding the extent of the involvement and what the consultants contributed to collection management, to extend the understanding of the relationship between collection managers and specialist consultants. The threat of loss of staff expertise may be less where consultants played major roles in tree collection management, as collection knowledge would be shared among several people.

4.10 Policy and Legislation

Q.15: What effect do local body policies and the RMA have on your plant collection?

Q.16: Why is this?

Table 4.18 Effect of Policy on Auckland Tree Collections

Reported Outcome	Collection Codes		
	Positive	Neutral	Negative
	Local Body Policies and RMA effects		
Protection of Collection	Private = 145 Terr. Auth. = 156 Public = DOC, 146	Private = 137	-
Restriction of Free Choice	-	Private = 137	Private = 141, 157
Supports Resource Allocation	Terr. Auth. = Parks	-	-
No Reason Given	-	Private = 149	-
Ineffectual	-	Public = 142	Public = 173

All the managers who reported local body policies and the RMA as having a positive effect on their plant collection indicated this was due to the

protection they afforded the trees in the collection. This is shown on **Table 4.18**. The Auckland City parks manager added that local body policies relating to open space provision support the allocation of resources to the park collections. One inner city collection manager noted a lack of protection afforded, by Auckland City zoning due to the Central Business District being exempt from the usual tree protection regulations. Those managers who indicated a negative effect recorded the reason as being the restrictions the regulations placed on them as managers, particularly in terms of tree maintenance and removal. Tree managers recording neutral effect mostly balanced protection and restriction effects in their responses, or made no comment.

Legislation not considered in the survey, but of significant impact to the protection of some sites and not others is the Historic Places Trust Act (1993). Highwic House, is an example of an Historic Places Trust site in Auckland. The garden has been protected along with the house. There is active management plan of the garden (Historic Places Trust, 1985), including the preparation of a garden management plan. However trees and landscapes of particular historic importance, like Logan Campbell's extensive tree plantings at Cornwall Park, which are not associated with buildings, are not given a place on the register, because of lack of mandate and funding constraints.

Collection managers responses indicated understanding of the effects of these factors on their collections. Managers indicated logical responses to the effect of local body policies.

4.11 Conclusion

A picture emerges of the differences between successful and unsuccessful collection management systems. Successful tree collection management is found to be characterised by strategic goal setting supported by thorough analysis of site and collection values, the use of management plans and tree inventories for systematic operational management including replanting programmes, plant health management; and monitoring of goal achievement

using regularly updated plant Information systems rich with useful tree data. Stable or generous financial budgets, well qualified staff, public and professional input, and networking with related interest groups also contribute to successful collection management. Collections with threat of restructuring and loss of staff, or budget cuts and cost-cutting are considered under threat by collection managers. Lack of strategic collection goals or operational strategies, poor plant information systems, and understanding of management concepts and environment were also identified as threats to the long-term preservation of collection values.

Weaknesses were identified in the survey instrument during the process of reporting the results. The survey included too wide a range of questions. This has resulted in a broad range of information, but asking more questions about fewer topics would have given richer data to analyse. Much of the information was gathered without any way to validate the information given by other means, as the interviews were too few to validate the whole data set. Some of the data was more comparable to previous studies, and therefore contributes to a broader discussion of national trends and key issues. This included the data concerning use of management plans, plant record systems, strategic goal setting, and the threats to collections. Information categories which have not been investigated by other researchers sit more in isolation, making conclusions more difficult to draw. This reflection illustrates the importance of coordinated or strategic research planning, so that research reinforces the development of a body of well accepted theory, such as undertaken for Urban Forestry research in Europe (Konijnendijk *et al.*, 2000).

As a result of this critique of the results gathered, the discussion in Chapter Five will concentrate on the key points clearly validated by the research.

Chapter 5: Discussion

5.0 Introduction

Having presented the biodiversity and management survey results in Chapters 3 and 4 respectively, the aim of this chapter is to synthesise two main discussions relating the theoretical understandings reviewed in the first chapter to the major findings of this research. As set out in the research aims in Chapter 2, these focus firstly on the biodiversity found in Auckland collections, and secondly on management of the collections at a local, regional and national scale.

The biodiversity discussion summarises the data collected about the nature of the collections, and the data analysis from Chapter 3, drawing out observable classifications within the data, identifying patterns and comparing the data with other plant collection research in New Zealand. Species range, species origins, trade availability and genus collection value are the characteristics investigated. From this analysis plant acquisition goals for Auckland collections are suggested.

The management discussion summarises the management results from Chapter 4 and the analysis of existing management models in Chapter One. The management of specific sites is discussed in light of a proposed model for plant collection management. Regional landscape planning of plant collections as part of the overall Urban Forest is recommended. Lastly, the finding that Auckland's exotic tree collections are a valuable resource worthy of protection, and currently having little status under the law, leads to the recommendation for the empowering of a national body with a mandate for the management of botanic gardens and plant collections.

There were no results suggesting that public and private collections were statistically significantly different in their use of management practices. There are a number of factors to be noted about this result. Firstly, it must be noted that the small sample size decreased the accuracy of this analysis. However

some points may be taken from the analysis. There are privately owned tree collections in Auckland that are equally well managed as publically owned collections. Current management theory and practice systems such as management planning, computerised plant records systems and visitor satisfaction are all in evidence in private as well as public Auckland tree collections. However some private collections can be seen to be vulnerable to threats such as death of the owner, and lack of funds to replant as trees become senescent.

5.1 Tree Biodiversity In Auckland

The results of this research have revealed the diverse and unique range of trees found in Auckland tree collections, as presented in **Appendices 6** and **7**. The results reinforce findings by other researchers in New Zealand. The 1259 species and cultivars of trees found do not represent a large number of species in comparison to the national biodiversity found in Mackay's national vegetation survey of more than 5000 species and cultivars (1990). This is in part due to the narrower focus of this research project, with the exclusion of species and cultivars of woody shrubs included by Mackay (1990) due to her interest in northern temperate genera found at Eastwoodhill Arboretum. Oates (2000) found a wide range of the native plants in cultivation in New Zealand collections, but did not report the total number of taxa found.

The species diversity found included many uncommon trees, from many different countries, including trees from sub-tropical countries not able to be grown in more southern parts of New Zealand. **Figure 3.2** is a chart of tree origins. Comparisons of this chart with other studies is of limited value. The focus of Mackay's work, and therefore her survey, did not include many of the warmer climate trees of the Southern hemisphere such as New Zealand native trees, so it not surprising that there are a greater percentage of southern hemisphere trees, and a lower percentage of northern temperate trees, reported in Auckland than in Mackay's national survey (1990). Incomplete plant records and the loss of trees due to the pressure of land redevelopment are considered a major reason for only 60% of Burstall and Sale's 'Great Trees' being

confirmed by this research. This supports the case for plant research coordination, continuing notable tree registration and updating of records. Manager networking organisations were reported as important vehicles for planning of such strategies for comprehensive vegetation documentation.

At the collection level **Table 3.1** lists the collections surveyed in order of total number of taxa reported. As found in other surveys in New Zealand (Hammett, 1993; Mackay, 1996; Oates, 2000), there are important collections in private ownership, which are vulnerable to loss or dispersment when the owner moves on, dies, or becomes unable to manage the collection. This result supports the recommendation that an agency be given responsibility and funding to oversee and strategically manage plant collections in New Zealand.

The significance of Auckland street tree collections as the second and fourth largest collections in terms of diversity of species is evidence of the appropriateness of the American Urban Forest model in acknowledging a broad spectrum of vegetation types providing biodiversity in urban areas. Further research is required to quantify genera not previously studied at the national level e.g. Fabaceae and Myrtaceae, to gain a clearer picture of the importance of the Auckland collections. In terms of genus collections the most highly represented genera found were *Archontophoenix* with 100% species representation, *Phyllocladus* with 80% species representation, *Agathis* with 61%, *Cordyline* and *Phoenix* with 47%, *Cupressus* with 46%, and *Araucaria* with 44%. Research of this type into genus collection representation is required, firstly for individual collections to allow strategic acquisition programmes to be set, and secondly for the setting of strategic regional and national collection goals to increase genus representation where possible and appropriate. The ARBG was identified as having the largest number of species for many of these genera, along with Cornwall Park, Oratia Native Plants, the Domain and the Auckland City street tree collection for particular genera, as shown in **Table 3.5**. Collection acquisition goals, climatic tolerance of species and trade availability are three factors which effect the representation percentage possible for any particular genus. Particular genus collections may

also be due to an individual's particular interest, the influence of local plant breeders or nursery availability. For example, the palm collection at the ARBG was initiated by John Petit, when he was the chairperson of Parks for the area and the *Magnolia* collection includes several samples of Felix and Mark Jury's breeding programme. Whatever the reasons behind the collections, the biodiversity of the gardens is enriched by them. Another research area identified as not fully investigated by this study is fruit trees. There are a number of interesting sites in the Auckland region in terms of their botany in relation to the cultural and botanical history of fruit production.

Analysis of the trade availability of trees surveyed showed that 44% of the trees were available from more than three commercial sources in New Zealand, 31% were available in less than three nurseries, and 25% were not available from any commercial sources included in the Plantfinder (Gaddam, 1999). This result indicates low trade availability of many of the trees constituting tree collections and therefore the Urban Forest of Auckland, and highlights the role of nursery trade and plant collection manager's in the preservation of germplasm. Manager networks and sharing of trade and collection species lists are important tools in enabling plant material preservation and availability, either to the retail trade or a more specialist group of interested managers.

The literature review in Chapter 1 has led to three strands in an argument for recommended plant collection acquisition goals for Auckland. These are the goals identified from territorial authority district plans and policies, botanic garden collection trends and goals, and lastly the biodiversity analysis of collection status in Auckland at present.

The four city councils included in this research all state a goal of representing the identity of their cities through their planting policies. Strategies such as signature species for particular areas, ecological planting strategies and exotic subtropical accent plants are cited in the District Plans or Strategy documents for each council (Auckland City, 1999b; Manukau City, 1992; North Shore City Council, 1994; Waitakere City Council 1995). See Section 1.7. New Zealand's

location in the South Pacific is part of that identity and population mix, and so is the fact that we have a large number of introduced and naturalised exotic plants. Plants from the Pacific Islands are not well represented in Auckland tree collections. Therefore, as New Zealanders, there is little opportunity to understand the flora of our Pacific neighbours. In order to reflect the indigenous native and sub-tropical character of Auckland, particular emphasis should be placed on genera which Auckland shares with other Pacific Island nations such as *Dacrydium*, *Dysoxylum*, *Metrosideros*, *Podocarpus*, *Rhopalostylis*, and *Sophora*. Botanical connections with the other countries from the ancient Gondwana continent are also of interest. These are being demonstrated at the Auckland Regional Botanic Garden in the development of the Gondwana Arboretum.

The ideas behind plant acquisition for botanic gardens have followed trends that have changed several times since the first botanic garden was established at Padua University in the Sixteenth Century. Taxonomic classification, assessment of economically valuable plants, amenity classifications such as geographical and garden style arrangement, and *ex-situ* conservation of threatened native species are all demonstrated in the Auckland collections surveyed. The Auckland Regional Botanic Garden has collections laid out in all of the ways described above, all in one site. The result of this may be construed as complex but also rich in variety. The draft Plant Collections Policy (Auckland Regional Council, 2001) states a vision as a South Pacific Botanic Garden. There is evidence in the Gondwana Arboretum and the Threatened and Endangered Plants Garden that this goal is being implemented, and will over time change the composition of the plant collection as a whole.

As discussed in Section 1.3.1, plans for a national ethnobotanic garden proposed for Auckland in the 1980s were never implemented. A national ethnobotanic plant collection, demonstrating indigenous cultural use of plants is still lacking (Oates, 2000). Such a collection must be considered strategically at a national level, but may be appropriately sited in the Auckland region.

The third strand of a rationale for plant collection acquisition goals is the analysis of what already exists in Auckland tree collections. Nine of the thirteen most commonly found tree species in Auckland tree collections were native species. All but two trees of the thirteen most commonly found are evergreen species. *Podocarpus totara* was the most common tree, listed in 70% of surveyed collections. Although the most common species were largely native, overall only one quarter of the species found are of Australasian origin. The best represented genera in Auckland collections are *Archontophoenix*, *Phyllocladus*, *Agathis*, *Cordyline*, *Phoenix*, *Cupressus*, and *Araucaria*. The numerically largest families in Auckland collections are Myrtaceae, Magnoliaceae, Fabaceae, Cupressaceae, Rosaceae, Pinaceae, Aceraceae, Aracaceae and Podocarpaceae. These results represent a significantly different character from the focus of the Mackay surveys on temperate species (1990, 1993), the Oates (2000) study on native plant collections, or the Jamil (1998) study on rare plants. Few of the 17 northern hemisphere genera which Mackay studied are well represented in Auckland in terms of species and cultivars reported (see **Table 3.4**). This is partly due to unsuitability of the warmer climatic conditions for northern temperate trees in Auckland. The five families from this list which best reflect the native and sub-tropical character of Auckland are Myrtaceae, Magnoliaceae, Fabaceae, Aracaceae and Podocarpaceae. This research report recommends the strengthening of collection goals to represent suitable genera from these families in Auckland tree collections. It also recommends continuing strengthening of the representation of the genera *Archontophoenix*, *Phyllocladus*, *Agathis*, *Cordyline*, *Phoenix*, and *Araucaria*, due to the high representation already achieved, and their contribution to the native and sub-tropical character goal. A concern noted in recommending the collection of close relatives to our native species is the potential for hybridisation and naturalisation. Kermadec pohutukawa (*Metrosideros kermadecensis*) and the Tasmanian ngaio (*Myoporum insulare*) are examples of species thought to hybridise in this way. Research is therefore essential prior to the introduction of new species (Ewen Cameron, Auckland Museum botanist, personal communication, February 2001).

Another group of plants to be considered for Auckland collections are those exotics growing well in Auckland, but present in low numbers eg Japanese tan oak (*Castanopsis cuspidata*), ombu tree (*Phytolacca dioica*), Canary Island olive (*Picconia excelsa*), Brazilian fern tree (*Schizolobium parahybum*) and several uncommon *Eucalyptus* species seen at Cornwall Park and Waikumete Cemetery. In support of the use of exotic species in urban environments are the values they provide. Historic, recreational, amenity, spiritual and visual or aesthetic values are all provided by exotic flora as well as natives. 93% of New Zealand's plant species are introduced, including almost all the economically important species. A small percentage of these introduced species have naturalised (7.8%), but most do not threaten native ecosystems (Department of Conservation and Ministry for the Environment, 2000). Natural environments are the best places for *in-situ* conservation of indigenous flora. Eco-sourcing of indigenous seed for this purpose is the only way to preserve genetic purity of the local flora character. Auckland is reported to have the highest number of naturalised vascular species of any city of the world (Atkinson & Cameron, 1993; Lee *et al.*, 2000). In highly modified landscapes exotics may be an acceptable plant choice for amenity purposes, but new species must be planted in locations where they are able to be monitored. Urban situations may offer sites where exotic plants are less likely to naturalise than in natural areas (Lee *et al.*, 2000; Williams & Lee, 2001).

Recommendation One:

That Auckland tree collection managers become more explicit about plant acquisition goals as recommended by the IUCN (Bramwell *et al.*, 1987). In general, families currently well represented should be further strengthened, such as Myrtaceae, Magnoliaceae, Fabaceae, Aracaceae and Podocarpaceae, and the genera *Archontophoenix*, *Phyllocladus*, *Agathis*, *Cordyline*, *Phoenix*, and *Araucaria*, where appropriate. In order to reflect the indigenous native and sub-tropical character of Auckland, particular emphasis should be placed on genera which Auckland shares with other Pacific Island nations such as *Dacrydium*, *Dysoxylum*, *Metrosideros*, *Podocarpus*, *Rhopalostylis*, and *Sophora*. To extend this representation of New Zealand's geographical associations and to reflect international plant collection trends, Gondwanaland and

ethnobotanic collections are also relevant. Informal networking groups are currently the only fora for discussion of plant acquisition goals. There is no national body addressing national exotic species acquisition goal setting.

5.2 Plant Collection Management Model

5.2.0 Summary of Theoretical Findings

The theoretical management models considered in Chapter 1 highlighted both the process of management and the components being managed. A systems model was shown to best represent the interrelationship between the components and the process of management (Jubenville & Twight, 1993; Vogt et al., 1997). The four key stages in the process of plant collection management proposed in **Figure 1.4** are strategic planning, operational planning, implementation and monitoring. These are grounded more fully by the Mackay model (1996), with the addition of a prefacing phase of 'understanding landscape management concepts'. This phrase relates to the need for managers to have a sound knowledge of management, including an understanding of the external management environment shown in the Jubenville and Twight model (1993). The differentiation between management of biological and of human-use components of plant collections is made explicit in the separate subsystems simplifies from the Jubenville and Twight model (1993).

The results from this research provide data about performance of collection managers in regard to the content and process aspects of management. These may now be reflected on to give recommendations for collection management.

5.2.1 The Systems Model

This research confirms that plant collections are not isolated, independent of the outside influences of politics or economic constraints and that they are in an equilibrium state as proposed by system theory. Managers acknowledged the effects of external influences such as legislation and policy in question fifteen and external collection threats such as changes in organisational goals

in question thirteen. A useful way to represent the external influences such as legislation, territorial authority policies, organisation goals and budgets, is to see them as feeding into the mix of factors which must be evaluated or assessed before strategic planning is undertaken. Mackay's model (1996) is specific to plant collections, and deals only with the biological plant collection, rather than the human-use factors found to be an important part of the management of collections in urban Auckland. Using Mackay's clear description of the management process, along with the broader scope of components of the landscape system and its context in the Jubenville and Twight (1993), and the monitoring emphasised by almost all models, a more comprehensive model of plant collection emerges, as summarised in **Figure 5.1**. A simplified version of Mackay's management process becomes the 'core' of the system. It is intended that the reader refer to Mackay's work (2000) for a full explanation of the stages shown.

Management Subsystems

The three subsystems of resource, service and visitor management proposed by Jubenville and Twight have been simplified to two, termed the biological and cultural resource subsystems, which feed through the management process. In Chapter 1, it was found that there is often a conflict of interest in managing biological versus human use values. It is therefore important to acknowledge and manage both sets of values. These values are to be considered as separate management subsystems within the overall system (**Figure 5.1**). Administrative services and visitor management have been combined, in recognition that plant collection management must privilege the biological resource continued existence values of the collection above the visitor's recreational experience.

The two management subsystems shown in **Figure 5.1** are the Biological Management subsystem and the Cultural Management subsystem. The components of each resource are listed, followed by the resource context, and then the threats to the resource value of the collection. The cultural subsystem includes, the visitor (human use values), staff and management systems e.g. site

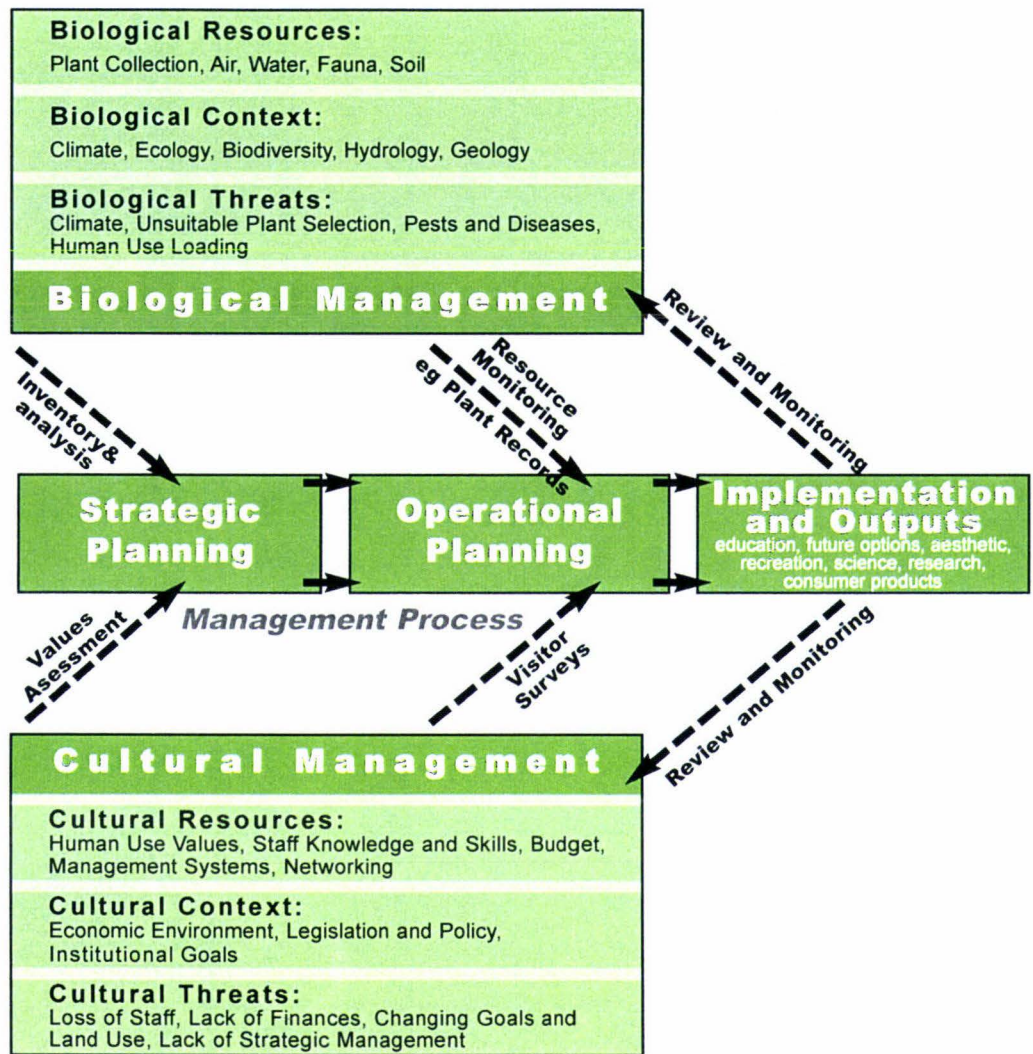


Figure 5.1 The Revised Plant Collection Systems Management Model (Synthesised from Jubenville and Twight, 1993, and MacKay, 1996).

design and development, information and administration systems applied to the collection, financial and staffing resources, goals of the managing agency, design agendas and current operative management programmes.

The biological subsystem includes the plant collection itself and other site resources such as water, fauna, soil, and air. Humans may be viewed as part of that ecology, particularly in terms of their effects as residents and loads on the site resources.

Collection Management Context

The external management environment confirmed by the management survey includes cultural factors such as the economic climate, the legislative and policy environment, wider organisation management, public and political support, availability of consultants and network organisations to the manager. The legislative environment considered in Chapter 1 included national legislation, regional and local authority policy and regulations. Some of the cultural environment elements e.g. legislation are common to all collections, but others are site specific such as heritage sites or iwi connections. Humans are considered as part of both subsystems, both biological participant and load on the site, but also as visitor to and/or manager of the site. The intrinsic biological context factors include climate, ecology, biodiversity, hydrology and geology. All these context factors must be analysed in order to have an accurate basis for strategic management.

Collection Management Threats

The collection management threats reported in this research are listed in the model to highlight their strategic importance and operational importance. Inadequate resourcing (staffing or financial budget) was the most common threat reported. Biological factors reported as threats by managers included poor previous plant selection choices, pests and diseases, climatic conditions and extreme events. Organisational interference and non-cooperation were identified as threats by a small number of managers, with politicians and the public more commonly reported as non-supportive. These factors lined up with those reported in literature.

In general, collection managers responses indicated an appreciation or understanding of the effects of these context factors on their collections. Managers indicated logical responses to the effect of local body policies. The threats to collections reported and the factors limiting effectiveness of management plans included lack of favourable conditions in many of these environmental factors, such as lack of finance or staff, political pressure and redevelopment of collection land for other purposes.

5.2.2 The Management Process: Strategic Management

From an understanding of the management system, its components and its context, the collection manager then enters into the management process illustrated in the central portion of Figure 5.1. This is based on the Mackay (1996) model. The first stage of the management process is to develop a strategic position based on the goals of the collection, inventory data and landscape assessment of values.

Inventory and Values Assessment

A detailed inventory of the site and collection resources, visitor market, existing programmes, staff resources, visual characteristics and cultural significance has been shown to be important in enabling managers to set clear and appropriate goals for their collection (Bromley, 1994). Management plans reviewed in Section 1.3 demonstrated a wide range of ways in which site resources and landscape values are being recorded in New Zealand, including inventory lists, plans, written descriptions, inventories, photographs and sketches. Analysis of this inventory data leads to the analysis of landscape values and the establishment of management goals. The process of evaluating the site enables the identification of the site's landscape values and provides an excellent platform to move on to formulating an appropriate strategic position and to strategic planning. Effective information systems ensure up-to-date monitoring of biological and site factors, and therefore influence strategic and operational planning processes.

Strategic Planning and Goal Setting

The results reveal a lack of clear goal setting by managers. Only half the managers reported having documented goals. One third of the managers did not list any goals on the survey form. This result indicates that not all managers were able to provide evidence of strategic goal setting for their collection. The reported goals reflected a wide range of landscape values and goals. Providing amenity value was the most commonly reported collection goal. An understanding of strategic management goals was not clearly demonstrated by all managers. This result supports findings by Oates (2000), where he reports

that few of the native plant collections surveyed had clear objectives, and few articulated how their collections contributed to research. If collection management is to be effective, setting clear goals for collections is of vital importance. Hitchmough (1994) identifies three common strategic weaknesses in management systems. The first of these is a lack of vision for the long-term purpose and role of the landscape. This weakness is apparent in half the collections surveyed, where managers reported having no documented collection goals. An understanding of strategic management goals was not clearly demonstrated by all managers in the answers they gave. Clear strategic goal setting has proved a task, which the managers surveyed found difficult, and should therefore be emphasised in collection manager education programmes. The second weakness listed by Hitchmough is inadequate resourcing, which was the most common threat to collections reported. Having clear collection goals has been shown to aid staff in visitor education, funding applications and collection promotion, so it is clear that these two weaknesses are linked. The third strategic weakness was Organisational interference and non-cooperation. This was identified as a threat by a small number of managers, but the politicians and the public were more commonly reported as non-supportive. This may be because many of the Auckland collection managers were part of public organizations, where politicians and therefore public opinions have more weight than in private organizations. These results draw attention to the importance of strategic management, both in specific collection goal setting and in resource allocation and support structures, which may be external to the immediate collection management hierarchy.

Management plans assess site and collection values, and may be considered an indication of a collection having a sound basis for strategic planning. Just under half the managers reported having completed management plans for their collections. There is certainly room for improving the level of strategic planning and goal setting at the local collection site level indicated by these results. Confusion over terms such as inventory and management plan may indicate a lack of understanding of management.

The Auckland Regional Botanic Gardens is recently gone through a revision of its strategic goals and management plan, as required under the RMA every five years. Cornwall Park has a current management plan. Collection Goals were not recorded in the survey but protection and enhancement of the collection were mentioned in another section of the survey questionnaire. For the University of Auckland, strategic planning is made difficult due to a sinking lid policy on staff and resources due to low student enrolments in the biological sciences. This places the plant collection at risk.

Almost all tree collection managers reported having identified and documented goals for their collections. However the goals listed in the survey were not often comprehensive, and in one case did not match management plan goals when cross-referenced. As argued in Chapter 1, collection goals should relate to the specific values of the plant collection site.

Biodiversity goals were not defined in many cases. This indicates a lack of strategic collection policy, and a lack of regional biodiversity knowledge. Collection managers in Auckland do not report clear direction in terms of which genera of trees they seek to collect. Only two of the collection managers stated goals of collecting particular types of plants. These were natives in one case and endangered natives, particularly off shore island natives, along with sub-tropical edible and ornamental exotics for Auckland. For other collections the goals reflected a preservation goal for what exists in the collection rather than a development goal. The type of plants to be preserved can be implied from the plant types indicated for some collections e.g. palms. However most managers indicated their collections contained trees from all types listed. This may indicate a generalist approach, with no clear collection objectives. It may also indicate that the question was too general, and that more detailed responses would have been given if a more specific plant collection genera question had been asked. A foot-note to this study is that the Auckland Regional Botanic Gardens are revising their management plan. A draft reveals that individual plant-collection curators have been involved in setting biodiversity goals for their particular collection. This is a great improvement on

the previous plan, which had very little about biodiversity goals (Auckland Regional Council, 2001).

Two managers referred to broader management documents when listing collection goals. One was the Auckland City Proposed District Plan (Auckland City, 1999a), and the other was the new City Tree Policy (Auckland City, 1999b). The City Tree Policy provides objectives and strategies and is to be developed further to include operational plans including ecological district maps and suggested species for different areas. Waitakere City already provides planting suggestions to residents in their document '*Guide to Planting and Restoration of Waitakere City*' (Lucas, 1997). Manukau City has a list of suggested species for its character areas in its district plan. The recognition of the importance of embedding landscape and biological values in strategic documents is borne out by this finding. Pressure for resource or staffing cuts may be resisted more effectively when goals reflecting such values are included in policy documents. Public pressure pushed North Shore city council to reintroduce tree protection ordinances which had been removed to reduce costs (Bucknell, 1997).

The most commonly identified goal for Auckland tree collection managers was to preserve the amenity values of their collection. This broad value may be ascribed a similar meaning as in the RMA (1991). The natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, cultural and recreational attributes, are therefore supported as important in producing positive visitor experiences by tree collection managers. Tree collection biodiversity and amenity value are thereby shown to have some relationship and are best managed in tandem as found in Victoria, Australia (Anstey, 2000). This is an area for further research in New Zealand.

Preservation of existing values came through strongly, with enhancement goals represented where managers reported collection development goals. The interaction between goals and values is highlighted here. The values of a particular site will, or should, determine the goals set for that site. The fact that

some managers gave incomplete and poorly articulated collection goals in terms of the goals found in legislation and literature supports the argument that generic goals used at the broad legislative and policy levels may not be appropriate to describe the specific landscape goals at the site scale.

5.2.3 The Management Process: Operational Planning

Operational plans set out how strategic goals are to be achieved. Clear goals, adequate financial and staffing funding, and a clear understanding and support from all stakeholders have been shown to be key components of successful plant collection management, based on the reported threats to collections. Well educated and knowledgeable staff, with strong horticultural and botanical knowledge, along with an understanding of management principles are essential for effective operational functioning of plant collections are also essential. Technology plays an increasing role for collection management such as computerised plant information systems and GIS site analysis, public information provision such as web site management. To achieve a broad knowledge and skill base in plant collection management, a team approach, or the use of consultants, is effective.

The preparation of a management plan has been cited as the industry standard for recording both the site analysis, strategic aims and operational plan (Bromley, 1994; Hitchmough, 1994).

Management plans were reported by 33% of the managers surveyed. This is a higher percentage than the 15% average reported in American research (Doherty *et al.*, 2000). This may implicate the bias towards high quality managers in the collection selection phase for the management survey, as identified at the end of Chapter 4. A lack of financial or staff resourcing was the most common factor limiting the effectiveness of management plans, followed by lack of political or public support. The group of managers using management plans represented private, territorial and public plant collection managers.

It is essential that tree management staff are involved in preparing such plans, to ensure staff ownership of the goals and objectives, and to avoid situations such as found in this study, where a manager reported different collection goals to those listed in the management plan. However it is advisable to employ consultants to conduct the necessary research and prepare the management plan if staff do not have the expertise (Paul Wilson, Auckland City, personal communication, February 2001).

Managers identified that loss of skilled and knowledgeable staff was a significant threat to the future of tree collections. In examining the complex environment in which tree collections operate, it has become clear how important education and continuing professional development is for collection staff. There are many aspects to managing a tree collection. Marketing, public relations, finances, information technology are all as much part of tree collection management as tree biology and arboriculture. The ideal staff member has a holistic multi-disciplinary education and is provided with continual updates in terms of new management principles, practices and technology. A question raised for future research is the nature and severity of the effect of staff loss due to public service and corporate restructuring and contracting out of services which has occurred over the last two decades (Kelsey, 1993). Staff knowledge and skills may be supplemented by commissioning consultants for specific tasks. Preparation of management plans and promotional material are two examples where consultants may be beneficial. Cornwall Park Trust has commissioned specialists from the University of Auckland to provide 3D digital images of the archeologic development of One Tree Hill. These will provide a range of high quality interpretive displays in the planned extension of their visitor centre. Engaging consultants has significantly extended the skill base available to the Trust management team.

Information Systems

Both strategic and operational management are supported by effective information systems. Collection managers used a variety of plant record systems, varying widely in complexity and sophistication. Some 50% of

managers reporting the use of computerised databases of some type. A trend towards computerised systems is evidenced when a comparison with MacKay's survey data in 1990 is made. MacKay found only 7.5% (3 out of 40) used computerised record systems, so there has been a sixfold increase in the use of computerised plant record systems in that ten year period. Oates (2000) reported "the vast majority had comprehensive record systems and many were recorded on an electronic database". This may indicate that a higher percentage of native plant collection managers use computerised records systems than general tree collection managers in Auckland. Approximately one quarter of the managers used full management inventory systems. These collections with full inventories all reported a spread of tree maturity, which indicated an appropriate tree replanting policy, ensuring the ongoing existence of the collection. More specialised systems used for the larger tree collections in Auckland, such as BGCI Base and Inmagic databases provided rich plant data that can be transferred around the world. The largest collections reported the greatest frequency of plant record updating. Inventory use figures varied widely in American studies, from 78% of municipal tree managers reported spending money on tree inventories in a nationwide survey (Kielbaso *et al.*, 1982), through to 23% report using street tree inventories in Massachusetts (Doherty *et al.*, 2000), and do not relate directly to the Auckland results, which sit somewhere in between these results.

Managers have developed effective tools for recording and assessing plant information. Computerised information systems allow information about the tree species present in the collection to be recorded and updated easily, allowing monitoring of the plant resource over time. Large collections benefit from using International Transfer Format (ITF) to enable international monitoring of biodiversity. Plant record systems and visitor feedback provide the information necessary for management to monitor the success of the management system.

The Auckland Regional Botanic Gardens used a specialised plant records data base system (Inmagic). Very thorough plant information is available. This is

updated continuously. Cornwall Park use an inventory system to record plant information and record maintenance. They have commissioned sophisticated digital modelling of their site to aid public understanding of the site. The University of Auckland use a specialised plant data base system (BCGI) with a wide range of information fields, and which is in International Transfer Format. Records may then be sent electronically to world biodiversity monitoring agencies.

The operational management weaknesses found relate closely to those identified by Hitchmough (1994, p17). Poor landscape management practices identified in the research were manual or memory-based plant record systems used by half the managers, aging tree population with no active replanting programme, operational goals dominating over strategic ones. Collection managers were unlikely to report Hitchmough's last common management weakness as it was inadequately trained staff, due to defending themselves and their fellow workers. Most managers reported access to wide range of landscape professionals, but their frequency of use was not analysed.

5.2.4 The Management Process: Monitoring Systems / Feedback Loops

Three forms of feed-back loops of review and performance monitoring were considered in the management survey. Firstly methods of assessing visitor satisfaction and comment were considered. Managers used comments to staff, visitor counts and surveys, community representatives on governing bodies and public consultation when developing management plans to assess visitor satisfaction. Private collections relied more heavily on comments to staff, while public collections more often used visitor surveys and community representation. This indicates an appreciation of the importance of monitoring performance by public managers, particularly those whose funding is linked to performance indicators such as visitor numbers.

Secondly, plant information systems provide a monitoring system for assessing the achievement of plant acquisition and plant health goals. Plant inventories

implemented at the strategic planning stage are ideally able to be updated to provide ongoing operational information such as tree maintenance and replanting records, and also monitoring information such as plant health data, species acquisition progress and maturity spread percentages. Computerised database systems used by just under half the managers surveyed provide an appropriate information tool for all three phases of management. Larger collections had information-rich record systems which were more regularly updated. This finding supports the Chua *et al.*(1989) model which has been incorporated into **Figure 5.1** as arrows cycling between the management process and the biological environment.

A third form of monitoring, identified in the research but only implicit in the diagram is networking with other managers and sharing best practice. Groups such as those listed in section 1.3.4 facilitate such networking. These groups operate largely on a voluntary basis, and lack funding to provide a national facilitation function. A recent Massey University Tree Collections seminar and workshop at Eastwoodhill in Gisborne (MacKay, 2000) gathered arborists, territorial authorities, tree collection managers and academics together to discuss tree collection management and a national database register of collections. Many valuable contacts were made, but it is important to note the lack of a national funded plant collections body to monitor and co-ordinate tree collection research and strategic planning.

Lastly, a comment on management plan reviews as a form of monitoring. Management plans are required to be reviewed every five years. As shown by the review of the ARBG management plan (ARBG, 2001), this process provides an opportunity to reconsider collection goals, operational management and the reporting systems providing monitoring of the outputs of the management system. Reviews are therefore an important part of the management cycle.

5.3 Regional Planning: the Geography of the Urban Forest

The use of the term Urban Forest to include all urban vegetation has proved useful to describe components represented by the surveyed collections. As Miller (1988) recommends, the city should be planned in an overall sense, as well as in its components. The Regional Council has prime responsibility for this, as set out in the Resource Management Act (1991). The map of Regional Parks in **Appendix 4**, and list of parks on the council web site (<http://www.arc.govt.nz>, accessed 14/12/01), shows evidence of the council progressively buying land to ensure open space is secured for regional parks to accommodate increased population growth and urban sprawl. However there is little evidence to suggest planning for open space linkage, as no green ways or corridors are indicated. Many of the regional parks are large natural areas in their own right, and are connected to other parks along the coastline reserve. Urban ecological planning theory proposes that open space is of more ecological benefit and is better utilised by the public, if it is linked to other open space (Hudson, 1991; Smith & Hellmund, 1993). My results support this claim, in as far as the tree collection sites that are linked to other open spaces, such as Western Springs Park and Albert Park, have high use compared with isolated sites.

Walkways and cycleways are also being developed to enhance open space linkage (Dawn Bardsley, Auckland City, personal communication, August 2000). The new cycleway along the northwestern motorway is an example of enabling links between greenspaces. Walkways along riparian corridors such as Oakley Creek also provide suitable links between larger green spaces. Avenue or boulevard street plantings of significant scale is another way to provide linked recreational experiences for tree collection visitors (Arnold, 1993).

Collection managers are advised to provide information about the collection so visitors understand the nature and goals of the collection, and relationship to other collections e.g. interpretative tree walks, written information or signage (Cantrill, 1972). Comment has proved to be more valuable when from an educated public, such as provided by 'Friends' groups at the ARBG and Eden gardens.

The results of this research showed that Auckland tree collections began with early European settlement, and that new collections have been established in every quarter century since that time. Evidence was also found of replanting programmes in 75% of the collections. This suggests that there is some long term planning being implemented by open space and tree collection managers of Auckland. The planning of a new arboretum by Auckland City (2000), in its City Tree Policy is an example of such planning. Planning of new collection locations, such as will be done for Auckland City's proposed arboretum, should spread open space provision around different areas of population intensity, but also take advantage of associated existing collections where possible. This will enhance collection use, but also contribute to the connectivity of Auckland's open space network.

Further possible developments of multi-use networks of open space include enhancing transport corridors and riparian corridors with strategic planting and possible incorporation of further walkways and cycleways. Landscape design process, using analysis overlay mapping and layering, along with sophisticated GIS data, provide valuable tools in landscape analysis, planning and design, which are keys to enhancing urban ecological spatial arrangement (Corner, 1996).

An regional planning view of the Urban Forest will achieve a more coherent design than if individual city councils plan in isolation. Integrative planning between the regional council and the city councils is essential to facilitate this regional network. Strategic monitoring of exotic flora, along with native flora is an important part of such planning. The imminent review of the Local Government Act (1974), provides an opportunity for strengthening the legislative mandate for such cooperation (Neil Olsen, Auckland Regional Council, personal communication, January 2001). Auckland's regional growth forum is another opportunity for cooperative policy-making and planning (<http://www.arc.govt.nz>, accessed 14/12/01). Auckland Territorial Authorities are providing some strategic leadership in preparing tree policy documents. Waitakere City was the first to have guidelines for a local ecological approach to planting. Auckland City is currently undertaking the same research, and has

set a goal to establish a new arboretum in its boundaries. Manukau City has suggested signature trees for different zones around the city.

5.4 National Planning: a Legislative Mandate

It is clear that the largely exotic biodiversity resource found in Auckland tree collections contributes significantly to the quality of lifestyle for the urban population. It is also clear that there is no mandate from the RMA (1991) for the protection and management of these collections. Neither is there the focus, national direction and funding which natural and rural landscapes and biodiversity benefit from under the RMA, Bio-what? and Biodiversity Strategy objectives. This research recommends a national agency be empowered to provide an overview and leadership in New Zealand Botanic Garden and Plant Collection management. The three main functions of this body would be to administer a national Botanic Garden and Plant Collection Register and to provide facilitation of collection manager networking. The British model of the National Trust would be unlikely to be successful in New Zealand due to the small population base to provide membership fees and visit the gardens. State coordination of botanic gardens is common around the world, and although it does not guarantee successful outcomes, it does provide a stable funding and administration base to support botanic garden managers. Four existing bodies are considered for this role in New Zealand.

The Queen Elizabeth II Trust's aim of provision of open space encompasses plant collections sites. As a result of the New Zealand Biodiversity Strategy, increased funding has been allocated to the Trust for the management of biodiversity. The Trust already has a role in protection of garden sites around New Zealand. Tertiary institutions providing academic and research leadership in plant collection management such as Massey University, are another possible agency. Additional funding of staffing for the administration of the register would be required. Continuing professional development opportunities for collection managers would then be linked to the tertiary education agency to ensure collection managers keep up to date with management theory, new technology and management tools available. A third option is a broadening of the scope of the Historic Places Act (1993) to include gardens and plant

collections. The Victorian Heritage Register (Heritage Victoria, 1999), provides a successful model for this option. Lastly, the Local Government Act review could be used to mandate Local Government New Zealand, and therefore regional, district and city councils to include plant collections in their cooperative strategic planning. The strength of this proposal is that the territorial authorities already manage many of the plant collection sites, but for other reasons, such as their park designation or recreation use. The challenge in this last option is in the cooperation between councils necessary to make it work.

5.5 Summary of Recommendations

Recommendation One:

That Auckland tree collection managers strengthen the representation of the families Myrtaceae, Magnoliaceae, Fabaceae, Aracaceae and Podocarpaceae where appropriate, in order to reflect the indigenous native and sub-tropical character of Auckland. Particular emphasis should be placed on genera which Auckland shares with other Pacific Island nations such as *Metrosideros*, *Podocarpus*, *Rhopalostylis*, *Sophora*, and *Dacrydium*. To extend this representation of New Zealand's geographical associations and to reflect international plant collection trends, Gondwanaland and ethnobotanic collections are also relevant. There is currently no national body to address these acquisition recommendations to, for discussion and implementation.

Recommendation Two:

A picture of effective tree collection management has been drawn out and a model for understanding the interactions of the components of the landscape system. Strategic and operational management planning, effective information systems, careful monitoring and review all contribute to effective tree collection management. It is recommended that Auckland tree collection managers follow the model of tree collection management put forward by this report.

Recommendation Three:

That a national agency be empowered to provide an overview and leadership in New Zealand Botanic Garden and Plant Collection management. The two

main functions of this body would be to administer a Plant Collection Register and to facilitate collection manager networking and research planning.

5.6 Conclusion

This research project has met its aims. It has collected objective measurable data about the nature of tree collections and their management in Auckland, identifying patterns and trends, and as a result has developed a set of plant collection recommendations, and synthesised a model for plant collections management.

The biodiversity survey has characterised the taxa found, and compared this to other plant collection research data in New Zealand. Current management practices used by tree collection managers in Auckland have been reviewed. The study found that managers used management systems to promote the continuation of the collection's quality of biodiversity surveyed, such as strategic goal setting, management planning, information management system technology, and of gaining public input into management planning.

The research therefore maps the broad picture of Auckland's Urban Forest, charting aspects of urban biodiversity with reference to the legislative and management models currently used. It establishes baselines for comparison over time, and identifies wider questions. It then synthesises a model of landscape management, based on the best practices found in previous models, and highlights the best collection management practices revealed. Regional cooperation was also recommended to promote strategic urban forest planning. The lack of national goal setting monitoring for botanic gardens and plant collections in New Zealand led to the recommendation that an agency be vested with the responsibility to oversee national plant collection biodiversity.

These recommendations for the strategic planning, protection and management of Tree Collections in Auckland focus attention on the need for a conscious vision for the tree collectors of Auckland, along with clear management and monitoring systems. This will ensure the further enhancement of the Urban Forest of the Auckland region.

Appendix 2: The Nature of Auckland's Original Vegetation.

(paraphrase from Cameron, Hayward and Murdoch. 1997. A Field Guide to Auckland: Exploring the Region's Natural and Historic Heritage).

Auckland's original forest was characterised by kauri forests on ridges; mixed broadleaf-podocarp forest of the hill slopes; broadleaf forest near the coast, manuka-dominated shrub-lands between forest and open ground; the olive-green mangroves on sheltered mud flats; and the tumbling spinifex heads and golden pingao on exposed sand dunes.

The broadleaf-podocarp forest of the warm lowlands and uplands included trees which still found in the Waitakeres and Hunua ranges; broadleaf trees such as tawa, taraire, rewarewa, kohekohe, puriri and mahoe are the main canopy species of the hill slopes. Emerging above this cover are the tall podocarps such as rimu, and totara. The gully bottoms or river floodplains of gully forests are the most fertile sites and support the tallest of New Zealand's trees, such as kahikatea, totara, pukatea and maire. Other plants of wet places are nikau, wheki, cabbage tree, *Astelia grandis*, tree fuschia or kotukutuku, cutty grass (*Gahnia xanthocarpa*), putaputaweta and kiokio.

Auckland shrublands are a transient between open ground and the forest. They were once wide spread in the region but most have succumbed to housing, farming or firewood extraction. Manuka (*Leptospermum scoparium*) is the dominant species. Typically growing with the manuka are shrubs of kumarahou (*Pomaderris kumeraho*), which remains in bud all winter and over a few spring days is suddenly covered in yellow flowers, tauhinu, akepiro (*Dracophyllum sinclairii*), mingimingi, with its spiky narrow leaves, and glossy karamu. Although many swamps and lakes have been drained and converted to pasture, Auckland still retains some fine freshwater wetlands. The catchment of these wetlands are generally protected by native forest.

The main swamp vegetation consists of emergent, plants rooted under water and protruding above it. They include; raupo, sedges, flax, swamp millet,

swamp willow weed, swamp willow herb. Common in the shallow swamp margins are kiokio fern, an aquatic buttercup, giant umbrella sedge, pink bindweed, manuka, cabbage tree and regenerating kahikatea (*Dacrycarpus dacrydoides*).

The coastal forest was characterised by a canopy of mixed broadleaf trees, including kohekohe, New Zealand's sole member of the mahogany family, which shows the tropical trait of flowering straight out of the trunk; taraire (*Beilschmiedia*), which creates a distinctive carpet of large leathery leaves underneath the tree; titoki (*Alectryon excelsum*), whose brownish fruit capsule splits to reveal a shiny black seed embedded in crimson flesh; karaka (*Corynocarpus laevigatus*), with shiny green leaves and scented, orange coloured fruit, and puriri (*Vitex lucens*), with rich green leaves, pale bark, dark pink flowers and bright red fruit. Crimson flowering pohutakawa (*Metrosideros excelsus*) fringes the beaches and coastal cliffs. New Zealand's only palm, the nikau, gave the coastal forest a tropical look.

Appendix 3: Auckland Regional Botanic Gardens Plant Records Database

Fields.

- 32. Pest and Disease: Text, Word
- 33. Distinguish features: Text, Word
- 34. Voucher specimen: Text, Term & Word
Special Filing: file numbers alphabetically
- 35. Photo record: Text, Term
Special Filing: file numbers alphabetically
- 36. Conservation status: Text, Term & Word
Special Filing: file numbers alphabetically
- 37. Outward distribution: Text, Word
- 38. Plant census: Text, Term & Word
Special Filing: file numbers alphabetically
- 39. Current number: Text, Term
Special Filing: do not ignore leading articles
- 40. Plant height: Number, Term
- 41. Plant diameter: Text, Word
- 42. BG labels issued: Text, Word
- 43. Miscellaneous: Text, Word
- 44. BG label data: Text
- 45. Sowing date: Date, Term
- 46. Germination date: Date, Term
- 47. Potting Date: Date, Term
- 48. Number potted: Number, Term
- 49. Ethnobotany: Text, Term & Word
- 50. Ecology: Text, Word
- 51. BG labels issued cvs: Text, Word
- 52. Current Quantity: Number, Term
- 53. Image: Image, Term

Log file enabled, showing 'Accession No'

Leading articles: a an the

Stop words: a an and by for from in of on the to with

Textbase Defaults.

Default indexing mode: SHARED IMMEDIATE
Default sort order: Sort by Accession No, sorting empties first
Default display form: New Viewing Form
Default edit form: Edit Screen
Default report form: New Viewing Form
Default print form: New Viewing Form
Default QBE screen: Basic QBE Screen
Default record skeleton: <none>

Currently in Use

Current user-specified sort: <none>
Current display form: New Viewing Form
Current edit form: New Viewing Form
Current report form: generic list (private)
Current print form: Plants Viewing Form
Current QBE screen: Basic QBE Screen
Current record skeleton: <none>

Saved in textbase: 0 sets, 23 record skeletons, 11 forms, 1 QBE screens

Saved in user file: 4 sets, 80 record skeletons, 13 forms, 1 QBE screens

User Preferences:

Do not read/write extended characters in MS-DOS format
Use short format for pasted dates
Search item highlight display: REVERSE VIDEO
Search item highlight print: BOLD
Use inclusive search option for multiple fields in QBE box
Tab to QBE boolean buttons
Basic text font: Times New Roman 10
Basic label font: Arial 10 Bold
Image drive(s): I
Support multipage TIFF images
Support long filenames for images

Textbase Information

Image DB:TextWorks 3.0
Current date: 4/26/00 11:40:30 AM
Serial # DB(0-11-1831, 2 users licensed, 0 users currently active

Textbase: L:\Image\Plants\PARKS
Created: 11/12/97 11:26:39 PM
Description: Botanic Garden Plant Information
Maximum textbase users: 3
Users currently in textbase: 1
Records in textbase: 21922
Records with deferred updates: 0
Current indexing mode: SHARED IMMEDIATE
User file directory: m:\work\lfdimage\i
Master password in use

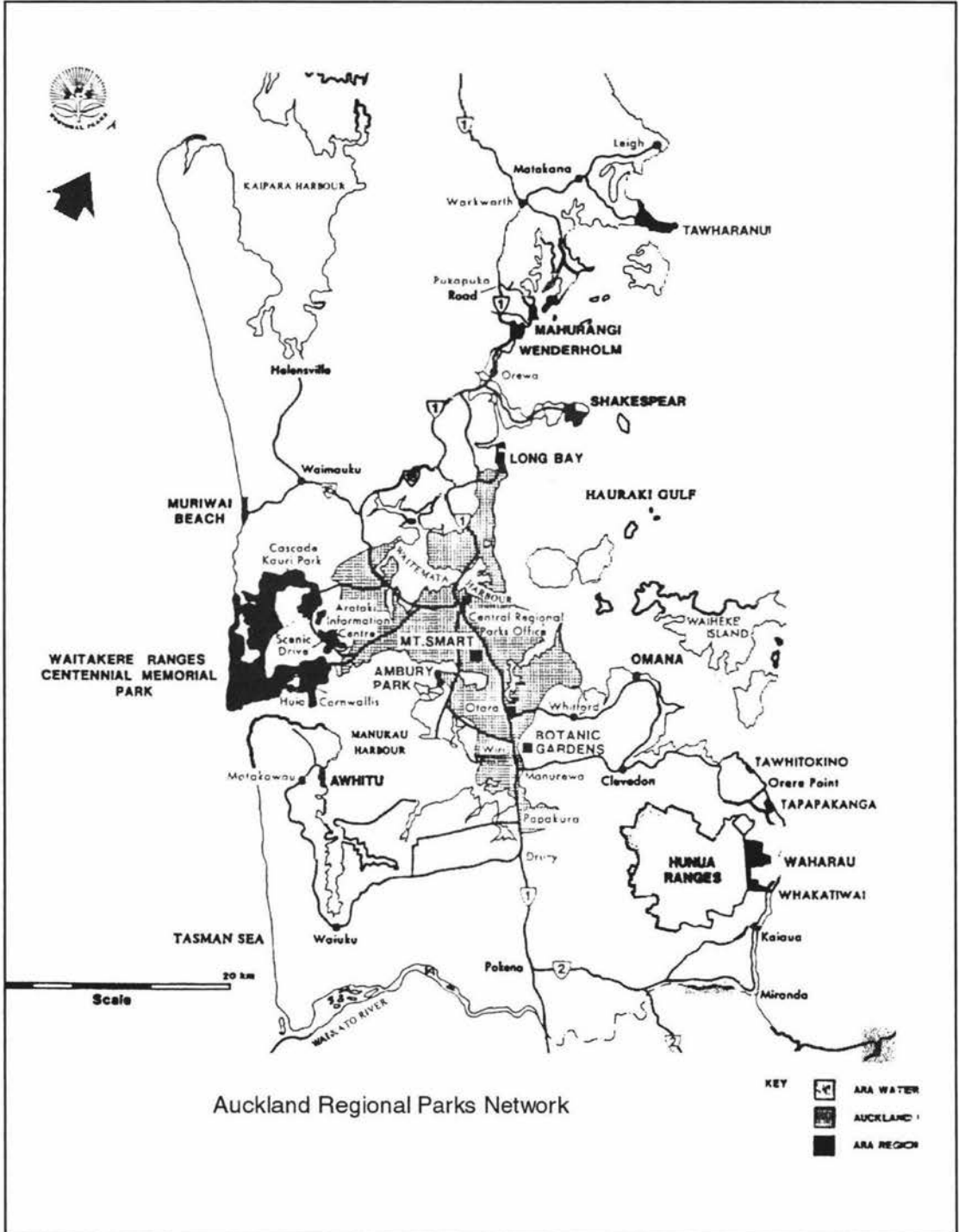
Field Summary:

- 1 Accession No. Text, Term
- 2 Entry Date Date, Term & Word
Special Filing: file numbers alphabetically
- 3 Entry Name Text, Term & Word
Special Filing: file numbers alphabetically
- 4 Botanical Name Text, Term & Word
Special Filing: file numbers alphabetically
- 5 Verified by Text, Term
Special Filing: file numbers alphabetically
- 6 Synonym Text, Term & Word
Special Filing: file numbers alphabetically
- 7 Family name Text, Term & Word
Special Filing: file numbers alphabetically
- 8 Geographical Distrib Text, Term & Word
Special Filing: file numbers alphabetically
- 9 Vernacular Text, Term & Word
Special Filing: file numbers alphabetically
- 10 Gymnosperm-Ang Text, Term & Word
Special Filing: file numbers alphabetically
- 11 Provenance Text, Term & Word
Special Filing: file numbers alphabetically
- 12 Donor source Text, Term & Word
Special Filing: file numbers alphabetically
- 13 Quantity Text
- 14 Propagule Text, Word
- 15 Plant size Text, Word
- 16 Planting date Date, Term & Word
- 17 Planting quantity Number, Term
- 18 Size Text, Word
- 19 Gdn location Text, Term & Word
Special Filing: file numbers alphabetically
- 20 Bed number Text, Term & Word
Special Filing: file numbers alphabetically
- 21 Grid reference Text, Term & Word
Special Filing: file numbers alphabetically
- 22 Plant transfer Text, Term & Word
- 23 Death Date, Word
- 24 Life form Text, Word
- 25 Flowering period Date, Term & Word
Special Filing: file numbers alphabetically
- 26 Flower colour Text, Term & Word
Special Filing: file numbers alphabetically
- 27 Flower scent Text, Term & Word
Special Filing: file numbers alphabetically
- 28 Seed collection Date, Word
- 29 Cultural techniques Text, Word
- 30 Propagation method Text, Word
- 31 Pruning method Text, Word

Appendix 4: Auckland Regional Parks Map

(Auckland Regional Authority, 1988).

See also <http://www.arc.govt.nz> for list of parks.



Appendix 5: Survey Questionnaire and Accompanying Letter

25 June 1999

Dear

Re: Tree Collections of Auckland Research project

Thank you for your participation in the tree data survey for this project earlier in the year. I am now following up with an investigation into the threats to the tree collections studied and the best practices used to effectively manage the collections.

All information supplied will be confidential. No real names (i.e. Your name or people you mention) will be used in my research report unless you have given your consent. You have the absolute right to withdraw from the project at any time without giving a reason and the right to request any or all of the information traceable to you to be withheld from the final report.

Attached is some background information on the project, a consent form and the questionnaire. I will phone you in approximately two weeks to arrange to collect the questionnaire and consent form, or if you prefer, send them back to me in the enclosed envelope.

Thank you again for your participation in this project.

Yours sincerely

Penny Cliffin

Rediscovering The Urban Forest: Tree Collections in Auckland

Research for partial fulfillment of the requirements for the degree of Masters of Applied Science in Landscape Management at Massey University.

OUTLINE OF RESEARCH PROJECT

Aim of the project

To research landscape managers' perceptions and management practices, in relation to the conservation of biodiversity in tree collections.

Justification for the study

The latest developments in New Zealand environmental legislation and government policies, such as the Resource Management Act and New Zealand's draft Biodiversity Strategy, are based on an economic world-view where landscape is portrayed as a 'natural' resource. This world-view largely ignores the urban landscape where the biggest proportion of population live in cities, like Auckland. Our national legislation therefore tends to ignore urban vegetation in general and urban trees particularly. Research into urban vegetation is therefore vital to highlight the character of urban forests, their roles and values and threats to their continued existence. Previous research has shown that trees are valued by urban residents for many different reasons, including biological, visual / aesthetic, historical and economic values. This study examines the importance of charting biodiversity in New Zealand and focuses on exotic urban trees in the Auckland region.

Background

My masterate thesis is concerned with characterising the exotic urban tree collections of Auckland and with the management of those collections. My interest is to understand the roles and values of, and threats to the urban forest, and to identify the best management practices currently used by tree collection managers in Auckland.

I have started this study using a very broad definition of the term tree collection, to include any group of trees for which there is a list of those trees present on the site. Collections surveyed on this basis are being analysed in terms of a narrower British based definition, of a group of plants representative of a genus group or sub genus group. The survey previously sent out to you has collected species data to allow this analysis, as well as being able to compare the nature of exotic tree collections in Auckland with those in the rest of New Zealand as researched by Marion Mackay.

This subsequent questionnaire aims to consider threats to tree collections and identify the current best management practices. It is hoped that this research may contribute to the dialogue on understanding and managing Auckland's urban forest.

Rediscovering The Urban Forest: Tree Collections in Auckland

CONSENT TO PARTICIPATE IN RESEARCH

I have been given and have understood an explanation of this research project. I have had the opportunity to ask questions and have them answered. I understand that neither my name nor the name of my organisation will be used in public reports unless I give my approval, and that I may withdraw myself, or any information traceable to me, from this project at any time.


I agree to take part in this research project and to have data collected in this questionnaire included in the research report.

Signature _____

Name _____
(please print clearly)

Date _____

Thank you very much for your time and help to make this study possible. If you have any questions or concerns, please do not hesitate to contact my research supervisor, or me.

Penny Clifflin Department of Landscape and Plant Sc. UNITEC – Institute of Technology Private Bag 92025 Auckland	Dr Marion Mackay Institute of Natural Resources Massey University Private Bag 11 222 Palmerston North
	Ph 06 3504414 email M.B.Mackay@massey.ac.nz

Rediscovering The Urban Forest: Tree Collections in Auckland

TREE COLLECTIONS OF AUCKLAND QUESTIONNAIRE

Please answer the following questions:

1. Please indicate which type of tree collection you identify your collection with?

- Private collection
- Public / Government collection
- Local authority park, reserve or collection
- Regional authority park, reserve or collection
- Other _____

2. How many years ago was this collection started?

- 0-10yrs
- 10-20yrs
- 20-50yrs
- 50 - 75yrs
- 75-100yrs
- >100yrs

3. Does the collection have identified and documented goals?

- Yes
- No
- Identified but not documented
- Not sure

4. If 'Yes' , what are those goals:

5. Is there a management plan for this collection?

Yes No In progress.

If 'No' go on to question 7.

6. If there is a plan, what are the factors which limit the effectiveness of the management plan?

7. How is public interest and comment integrated into management planning for this collection

Not applicable	<input type="checkbox"/>
Feedback to staff	<input type="checkbox"/>
Questionnaires	<input type="checkbox"/>
Community representative on board	<input type="checkbox"/>
Consultation when developing management plan	<input type="checkbox"/>
Other _____?	<input type="checkbox"/>

8. What are the elements that make up this collection?

Plant Collection	<input type="checkbox"/>
Library	<input type="checkbox"/>
Nursery	<input type="checkbox"/>
Laboratory	<input type="checkbox"/>
Herbarium	<input type="checkbox"/>
Inventory	<input type="checkbox"/>

9. What tree types are represented in this collection?

Native	<input type="checkbox"/>
Palms	<input type="checkbox"/>
Sub-tropical	<input type="checkbox"/>
Northern hemisphere	<input type="checkbox"/>
Southern hemisphere	<input type="checkbox"/>
Other	<input type="checkbox"/>
_____	<input type="checkbox"/>

10. How is tree information documented and maintained for this collection?

Memory	
Species lists	
Herbarium	
Archival material / Historic documents	
Database or spreadsheet records	
Asset register	
Tree maintenance inventory	
Other _____?	

11. How regularly are these records updated?

Never	
Annually	
Biannually	
Every 5 years	
Irregularly	
Other _____?	

12. Evaluate your collection in terms of the following biodiversity indicators:

a) Species diversity (your perception)

	Trees	Overall
High		
Medium		
Low		

b) Tree Condition

	Tree Health	Maintenance level
High		
Medium		
Low		

c) Tree Maturity stage- percentage of total collection

	%
Senescent	
Mature	
Semi-mature	
Juvenile	
Other	

d) Species Rarity

Low	1-5 rare species	<input type="checkbox"/>
Medium	5-10 rare species	<input type="checkbox"/>
High	>10 rare species	<input type="checkbox"/>

13. What are the threats to this collection preserving its biodiversity in the medium to long-term? Please rank their importance.

Threats

Ranking

Lack of support from management	<input type="checkbox"/>	<input type="checkbox"/>
Restructuring of skilled / knowledgeable staff	<input type="checkbox"/>	<input type="checkbox"/>
Sale of land / death of owner	<input type="checkbox"/>	<input type="checkbox"/>
Lack of national networks , planning and co-operation	<input type="checkbox"/>	<input type="checkbox"/>
Lack of finance	<input type="checkbox"/>	<input type="checkbox"/>
Climatic changes or extreme events	<input type="checkbox"/>	<input type="checkbox"/>
Other _____?	<input type="checkbox"/>	<input type="checkbox"/>

14. Do you access to, and involvement with the following professionals on your management team?

Horticulturalist	<input type="checkbox"/>
Arborist	<input type="checkbox"/>
Botanist	<input type="checkbox"/>
Landscape Architect	<input type="checkbox"/>
Resource manager or planner	<input type="checkbox"/>
Other tree collection managers through network organisations	<input type="checkbox"/>

15. What effect do local body policies / the RMA have on your plant collection?

Positive	<input type="checkbox"/>
Neutral	<input type="checkbox"/>
Negative	<input type="checkbox"/>

Why is this?

Thank you for your participation in this research project.

Appendix 6: Summary Species Data List and Locations

Botanic Name	Trade Avail	Continent	Family	Location No. Summary
<i>Acer buergerianum</i>	Y	Asia	Aceraceae	120 153 154
<i>Acer campbellii</i>	1	Asia	Aceraceae	120
<i>Acer campbellii</i> spp. <i>wilsonii</i>	1	Asia	Aceraceae	120
<i>Acer campestre</i>	Y	Europe & Asia	Aceraceae	158
<i>Acer capillipes</i>	Y	Asia	Aceraceae	120 158
<i>Acer carpinifolium</i>	N	Asia	Aceraceae	120 173
<i>Acer caudatifolium</i> (<i>kawakamii</i> , <i>morrisonense</i>)	Y	Asia	Aceraceae	120 173
<i>Acer crataegifolium</i>	N	Asia	Aceraceae	120
<i>Acer davidii</i>	Y	Asia	Aceraceae	120
<i>Acer griseum</i> (<i>nikoense</i> var. <i>griseum</i>)	Y	Asia	Aceraceae	120 149
<i>Acer hookeri</i>	1	Asia	Aceraceae	173
<i>Acer japonicum</i>	3	Asia	Aceraceae	149
<i>Acer japonicum</i> 'Green Cascade'	2	Asia	Aceraceae	149
<i>Acer miyabei</i>	1	Asia	Aceraceae	120
<i>Acer negundo</i>	Y	North America	Aceraceae	120 143 149 153 154 157 158 167 170 173
<i>Acer negundo</i> 'Kelly's Gold'	Y	Horticultural	Aceraceae	173
<i>Acer negundo</i> 'Variegata'	2	Horticultural	Aceraceae	158
<i>Acer oliveranum</i>	N	Asia	Aceraceae	120
<i>Acer palmatum</i> (<i>polymorphum</i>)	Y	Asia	Aceraceae	138 146 149 153 158 173 176
<i>Acer palmatum</i> 'Atropurpureum'	Y	Horticultural	Aceraceae	138 149
<i>Acer palmatum</i> 'Beni Komachi'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Bloodgood'	Y	Horticultural	Aceraceae	138
<i>Acer palmatum</i> 'Chishio'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Dissectum Atropurpureum'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Dissectum Crimson Queen'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Dissectum Palmatifidum'	2	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Dissectum Red Dragon'	2	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Dissectum Viridis'	1	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Dissectum'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Hagoromo'	N	Horticultural	Aceraceae	120
<i>Acer palmatum</i> 'Katsura'	Y	Horticultural	Aceraceae	120
<i>Acer palmatum</i> 'O'Kagami'	2	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Omurayama'	1	Horticultural	Aceraceae	120 149
<i>Acer palmatum</i> 'Osakasuki'	Y	Horticultural	Aceraceae	120
<i>Acer palmatum</i> 'Roseum'	N	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Septemlobum'	N	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Shindeshojo'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Shishigashira'	N	Horticultural	Aceraceae	120 149
<i>Acer palmatum</i> 'Sumingashi'	Y	Horticultural	Aceraceae	149
<i>Acer palmatum</i> 'Villa Taranto'	2	Horticultural	Aceraceae	149
<i>Acer paxii</i>	N	Asia	Aceraceae	120
<i>Acer pentaphyllum</i>	2	Asia	Aceraceae	120 149
<i>Acer platanoides</i>	Y	Europe	Aceraceae	120 138 152 158
<i>Acer platanoides</i> 'Crimson King'	Y	Horticultural	Aceraceae	173

<i>Acer platanoides</i> 'Palmatifidum' ('Dissectum')	2	Horticultural	Aceraceae	149
				138 143 146 147 148 152 157 158 167 172
<i>Acer pseudoplatanus</i>	Y	Europe, Asia	Aceraceae	173 176
<i>Acer pseudoplatanus</i> 'Esk Sunset'	Y	Horticultural	Aceraceae	149
<i>Acer rubrum</i>	Y	North America	Aceraceae	149
<i>Acer rufinerve</i>	Y	Asia	Aceraceae	120
<i>Acer saccharum</i>	Y	North America	Aceraceae	138 153 173
<i>Acer saccharum</i> ssp. <i>leucoderme</i>	N	North America	Aceraceae	120
<i>Acer sieboldianum</i> 'Silver Vein'	1	Horticultural	Aceraceae	149
<i>Acer sikkimense</i>	N	Asia	Aceraceae	120
<i>Acer tartaricum</i> ssp. <i>ginnala</i>	Y	Europe	Aceraceae	120
<i>Acer truncatum</i>	N	Asia	Aceraceae	120
<i>Acer x freemanii</i> 'Autumn Blaze'	Y		Aceraceae	120 149
<i>Beaucarnea recurvata</i>	Y	North America	Agavaceae	120 149 173
				120 137 138 139 141 142 143 144 146 148 149 153 157 168 169 171 172 173 174 176
<i>Cordyline australis</i>	Y	Australasia	Agavaceae	
<i>Cordyline australis</i> 'Albertii'	2	Australasia	Agavaceae	137 142
<i>Cordyline australis</i> 'Purpurea'	Y	Australasia	Agavaceae	137 149
<i>Cordyline australis</i> 'Variegata'	N	Australasia	Agavaceae	173
<i>Cordyline banksii</i>	Y	Australasia	Agavaceae	137 142
<i>Cordyline banksii</i> 'Purple Tower'	Y	Australasia	Agavaceae	137
<i>Cordyline banksii</i> 'Purpurea'	2	Australasia	Agavaceae	137
<i>Cordyline baueri</i>	Y	Australasia	Agavaceae	138 142 170
<i>Cordyline kaspar</i>	Y	Australasia	Agavaceae	137 138 142 146
<i>Cordyline kaspar</i> 'Green Goddess'	Y	Australasia	Agavaceae	120 137 149
<i>Cordyline oblecta</i>	N	Australasia	Agavaceae	120
<i>Cordyline pumilio</i>	Y	Australasia	Agavaceae	120 137 138 142 149
<i>Cordyline stricta</i>	1	Australasia	Agavaceae	120 138
<i>Cordyline terminalis</i>	3	Australasia	Agavaceae	137 149
<i>Dracaena deremensis</i>	1	Africa	Agavaceae	140
				120 140 142 149 169
<i>Dracaena draco</i>	N	Europe	Agavaceae	183
<i>Cotinus coggygria</i>	Y	Europe	Anacardiaceae	138 143
<i>Harpephyllum caffrum</i>	Y	Africa	Anacardiaceae	138 153 154 156 173
<i>Pistacia chinensis</i>	Y	Asia	Anacardiaceae	138 173
<i>Rhus glabra</i> 'Laciniata'	2	Horticultural	Anacardiaceae	173
<i>Rhus succedanea</i>	Y	Asia	Anacardiaceae	138 143 157 158 183
<i>Rhus typhina</i>	2	North America	Anacardiaceae	138
<i>Schinus areira</i>	N	South America	Anacardiaceae	138 146 154 175
<i>Schinus fargira</i>	N	South America	Anacardiaceae	138
<i>Schinus molle</i>	Y	South America	Anacardiaceae	138 144 151 152 153 158 169 171 173 183

<i>Schinus terebinthifolius</i>	Y	South America	Anacardiaceae	138 144 152 153 158
<i>Carissa macrocarpa</i>	2	Africa	Apocynaceae	153
<i>Ilex altaclarensis</i> 'Golden King'	Y	Horticultural	Aquifoliaceae	143 173
<i>Ilex aquifolium</i>	Y	Europe	Aquifoliaceae	138 144 146 149 151 157 163 173 183
<i>Ilex cornuta</i>	2	Asia	Aquifoliaceae	120
<i>Ilex kingiana</i> (insignis)	3	Asia	Aquifoliaceae	120
<i>Ilex paraguariensis</i>	1	South America	Aquifoliaceae	142
<i>Ilex perado</i> var. <i>platyphylla</i>	3	Canary Is, Azores	Aquifoliaceae	120
<i>Archontophoenix cunninghamiana</i>	Y	Australasia	Aracaceae	120 140 142 145 149 153 161 167 171
<i>Archontophoenix maxima</i>	N	Australasia	Aracaceae	120
<i>Archontophoenix</i> sp 'Mt Lewis' (syn <i>purpurea</i>)	3	Australasia	Aracaceae	120 145 167
<i>Archontophoenix tuckeri</i>	1		Aracaceae	120
<i>Butia capitata</i>	Y	South America	Aracaceae	120 140 142 153 161 167 170
<i>Butia eriopatha</i>	N	Asia	Aracaceae	120
<i>Butia yatay</i>	1	South America	Aracaceae	120 153 160 173
<i>Ceroxylon alpinum</i> (syn <i>andricola</i>)	N	South America	Aracaceae	142 170
<i>Chamaerops humilis</i>	Y	Europe	Aracaceae	120 140 149 160 161
<i>Chamaerops humilis</i> var. <i>argentea</i>	N	Europe	Aracaceae	120
<i>Hedyscepe canterburyana</i> (<i>Kentia canterburyana</i>)	N	Australasia	Aracaceae	120 145 149 167
<i>Howea belmoreana</i>	1	Australasia	Aracaceae	120 139 145 167
<i>Howea fosteriana</i>	Y	Australasia	Aracaceae	120 145 149 161 167 169 173 174
<i>Jubaea chilensis</i>	1	South America	Aracaceae	120 149 167 175 183
<i>Livistona australis</i>	Y	Australasia	Aracaceae	120 140 145 156 160 161 167 173 183
<i>Livistona chinensis</i>	Y	Asia	Aracaceae	120 140 142 160 161 167
<i>Livistona decipiens</i>	3	Australasia	Aracaceae	120 167
<i>Livistona jenkinsiana</i>	N	Asia	Aracaceae	120
<i>Livistona saribus</i>	1	Asia	Aracaceae	160
<i>Neodypsis decaryi</i>	1	Africa	Aracaceae	140
<i>Parajubaea cocoides</i>	1	South America	Aracaceae	120 161
<i>Phoenix acaulis</i>	N	Asia	Aracaceae	120
<i>Phoenix canariensis</i>	Y	Europe	Aracaceae	120 138 140 144 145 146 148 151 153 157 158 161 163 167 168 169 170 173 174 175 178 183
<i>Phoenix dactylifera</i>	1	Africa	Aracaceae	120
<i>Phoenix loureirii</i>	N	Asia	Aracaceae	120

<i>Phoenix reclinata</i>	Y	Africa	Aracaceae	120 140 142 145 148 153 160 161 167 178
<i>Phoenix robellini</i>	Y	Asia	Aracaceae	120 161 167 173
<i>Phoenix rupicola</i>	1	Asia	Aracaceae	120 169
<i>Phoenix sylvestris</i>	1		Aracaceae	140
<i>Rhopalostylis baueri</i>	Y	Australasia	Aracaceae	139 149 161 167
<i>Rhopalostylis baueri</i> var. <i>cheesemanii</i>	N	Australasia	Aracaceae	142 167 173
<i>Rhopalostylis cheesemanii</i>	Y	Australasia	Aracaceae	120 137 145
				120 137 138 142 145 149 153 157 158 161 167 173 174 183
<i>Rhopalostylis sapida</i>	Y	Australasia	Aracaceae	167
<i>Rhopalostylis sapida</i> 'Chatham Is'	2	Australasia	Aracaceae	120
<i>Sabal bermudana</i>	N	North America	Aracaceae	120
<i>Sabal causarium</i>	N	South America	Aracaceae	120
<i>Sabal mexicana</i>	N	North America	Aracaceae	120
<i>Sabal palmetto</i>	Y	North America	Aracaceae	120 145 167
<i>Syagrus pseudococos</i>	N	South America	Aracaceae	120
				138 140 142 145 146 149 160 161 167 169 170 183
<i>Syagrus romanzoffiana</i>	Y	South America	Aracaceae	138 140 142 146 147 148 149 157 158 160 161 163 167 169 173
<i>Trachycarpus fortunei</i> (<i>excelsa</i>)	Y	Asia	Aracaceae	174 175
<i>Trachycarpus takil</i>	N	Asia	Aracaceae	120
<i>Trachycarpus wagnerianus</i>	N	Asia	Aracaceae	120
<i>Trithrinax acanthocoma</i>	1	South America	Aracaceae	160
<i>Washingtonia filifera</i> (<i>filamentosa</i>)	1	North America	Aracaceae	120 142 145 158
				120 138 140 142 148 149 153 158 160 161 167
<i>Washingtonia robusta</i> (<i>gracilis</i>)	Y	North America	Aracaceae	145 167 170
<i>Caryota ochlandra</i>	N	China	Aracaceae	120 140 142 167
<i>Archontophoenix alexandrae</i>	Y	Australasia	Aracaceae(Arec)	173
<i>Aralia elata</i>	1	Asia	Araliaceae	137 138 144 157 170 171 173 183
<i>Meryta sinclairii</i>	Y	Australasia	Araliaceae	138 157 158
<i>Pseudopanax arboreus</i>	Y	Australasia	Araliaceae	157
<i>Pseudopanax colensoi</i>	Y	Australasia	Araliaceae	138 157 158 173
<i>Pseudopanax crassifolium</i>	Y	Australasia	Araliaceae	173
<i>Pseudopanax ferox</i>	Y	Australasia	Araliaceae	138 158 173
<i>Pseudopanax laetus</i>	Y	Australasia	Araliaceae	138 157 158 173
<i>Pseudopanax lessonii</i>	Y	Australasia	Araliaceae	158
<i>Pseudopanax lessonii</i> hybrid	Y	Australasia	Araliaceae	158
<i>Pseudopanax purpureus</i>		Australasia	Araliaceae	148 158 173
<i>Schefflera actinophylla</i>	Y	Australasia	Araliaceae	138 158
<i>Schefflera arboricolor</i>	2	Asia	Araliaceae	

				120 137 138 141 142 143 148 149 152 153 155 157 158 168 170 171 173 174 176 178
<i>Agathis australis</i>	Y	Australasia	Araucariaceae	183
<i>Agathis lanceolata</i>	N	Australasia	Araucariaceae	120 169
<i>Agathis macrophylla</i>	1	Australasia	Araucariaceae	120 153 154 157
<i>Agathis microstachya</i>	N	Australasia	Araucariaceae	181
<i>Agathis montana</i>	N	Australasia	Araucariaceae	120
<i>Agathis moorei</i>	N	Australasia	Araucariaceae	120
<i>Agathis palmerstonii</i>	N	Australasia	Araucariaceae	139
				138 142 147 148 153
<i>Agathis robusta</i>	Y	Australasia	Araucariaceae	163 175 183
<i>Araucaria angustifolia</i>	N	South America	Araucariaceae	120
<i>Araucaria araucana (imbricata)</i>	Y	South America	Araucariaceae	138 153 170
				120 139 153 169 173
<i>Araucaria bidwillii</i>	Y	Australasia	Araucariaceae	175 183
<i>Araucaria columnaris</i>	1	Australasia	Araucariaceae	146
				147 153 157 169 173
<i>Araucaria cunninghamii</i>	3	Australasia	Araucariaceae	175 183
<i>Araucaria cunninghamii var. papuana</i>	N	Australasia	Araucariaceae	120
				120 138 139 142 143 144 146 147 148 149 152 153 157 158 160 163 169 170 173 174
<i>Araucaria heterophylla</i>	Y	Australasia	Araucariaceae	175 178 183
<i>Araucaria hunsteinii</i>	N	Australasia	Araucariaceae	120
<i>Alnus cordata</i>		Europe	Betulaceae	138 158 183
				120 138 143 152 153
<i>Alnus glutinosa</i>	Y	Europe, Nth Africa	Betulaceae	157 158
<i>Alnus hirsuta var. mandshurica</i>	3	Asia	Betulaceae	120
<i>Alnus incana 'Laciniata'</i>	N	Horticultural	Betulaceae	120 173
<i>Alnus incana 'Pendula'</i>	2	Horticultural	Betulaceae	120
<i>Alnus jorullensis</i>	Y	North & South America	Betulaceae	120 138 158
<i>Alnus rubra</i>	Y	North America	Betulaceae	157 158
<i>Betula albo-sinensis var. septentrionalis</i>	1	Asia	Betulaceae	120 148
<i>Betula alleghniensis (lutea)</i>	Y	North America	Betulaceae	138
<i>Betula alnoides</i>	N	Asia	Betulaceae	120
<i>Betula costata</i>	Y	Asia	Betulaceae	120
<i>Betula cylindrostachya</i>	2	Asia	Betulaceae	120
<i>Betula davurica</i>	1	Asia	Betulaceae	158
<i>Betula ermanii</i>	1	Asia	Betulaceae	120 173
<i>Betula grossa</i>	N	Asia	Betulaceae	120
<i>Betula jacquemontii (utilis)</i>	Y	Asia	Betulaceae	120
<i>Betula luminifera</i>	1	Asia	Betulaceae	120
<i>Betula nigra 'Heritage'</i>	1	Horticultural	Betulaceae	120 173
<i>Betula nigra 'Uru-tawhai'</i>	2	Horticultural	Betulaceae	120
<i>Betula papyrifera</i>	Y	North America	Betulaceae	138 158

				138 146 147 148 149 152 153 155 157 158
<i>Betula pendula</i>	Y	Europe	Betulaceae	171 173 174
<i>Betula pendula</i> 'Dalecarlica'	Y		Betulaceae	173
<i>Betula pendula</i> 'Youngii'	Y	Europe	Betulaceae	149 173
<i>Betula platyphylla</i> var. <i>japonica</i>	Y	Asia	Betulaceae	120
<i>Betula platyphylla</i> var. <i>szechuanica</i>	1	Asia	Betulaceae	120
<i>Betula populifolia</i>	Y	North America	Betulaceae	120
<i>Betula pubescens</i>	Y	Europe	Betulaceae	120 143 157
<i>Betula schmidtii</i>	N	Asia	Betulaceae	120
<i>Carpinus betulus</i>	Y	Europe & Asia m	Betulaceae	120 153 173
<i>Carpinus japonica</i>	Y	Asia	Betulaceae	120
<i>Carpinus laxiflora</i>	1	Asia	Betulaceae	120
<i>Corylus avellana</i>	Y		Betulaceae	143
<i>Catalpa bignonioides</i>	Y	North America	Bignoniaceae	138 143 148 157 173
<i>Catalpa fargesii</i> f. <i>duclouxii</i>	N	Asia	Bignoniaceae	120
<i>Catalpa speciosa</i>	Y	North America	Bignoniaceae	153
				120 138 139 142 146 148 149 157 158 168 169 170 171 173 174
<i>Jacaranda mimosifolia</i>	Y	South America	Bignoniaceae	175 183
<i>Paulownia elongata</i>	2	Asia	Bignoniaceae	120 157
<i>Paulownia fortunei</i>	2	Asia	Bignoniaceae	120
<i>Paulownia tomentosa</i> (<i>imperialis</i>)	Y	Asia	Bignoniaceae	120 138 144 146 148 151 158
<i>Radermachera sinensis</i>		Asia	Bignoniaceae	120 153 158 171
<i>Spathodea campanulata</i>	N	Africa	Bignoniaceae	173
<i>Chiranthodendron pentadactylon</i>	1	North America	Bombacaceae	138 148 156 170
<i>Chorisia insignis</i>	1	South America	Bombacaceae	160
<i>Chorisia speciosa</i>	3	South America	Bombacaceae	138 153 170 173
<i>Ostrya carpinifolia</i>	Y	Europe	Carpinaceae	170
<i>Allocasuarina torulosa</i>	2	Australasia	Casuarinaceae	173
<i>Casuarina cunninghamiana</i>	Y	Europe	Casuarinaceae	138 147 152 154 173
<i>Casuarina equisetifolia</i>	2	Europe	Casuarinaceae	168
<i>Casuarina glauca</i>	Y	Australasia	Casuarinaceae	138 144 152 157
<i>Casuarina torulosa</i>	3	Australasia	Casuarinaceae	138
<i>Maytenus boaria</i>	Y	South America	Celastraceae	138 173
<i>Cephalotaxus fortunei</i>	Y	Asia	Cephalotaxaceae	157 183
<i>Cephalotaxus harringtonia</i>	2	Asia	Cephalotaxaceae	143 153
<i>Cephalotaxus harringtonia</i> var. <i>drupacaea</i>	3	Asia	Cephalotaxaceae	157 173 175
<i>Cercidiphyllum japonicum</i>	Y	Asia	Cercidiphyllaceae	173
<i>Clethra arborea</i>	3	North America	Clethraceae	138
<i>Cornus capitata</i>	Y	Asia	Cornaceae	138 157 173
<i>Cornus florida</i>	Y	North America	Cornaceae	138

				137 138 141 143 144 146 147 155 157 163 168 169 170 171 172 173 174 176 178 181
<i>Corynocarpus laevigatus</i>	Y	Australasia	Corynocarpaceae	183
<i>Ceratopetalum gummiferum</i>	N	Australasia	Cunoniaceae	138 157 173
<i>Cunonia capensis</i>	Y	Africa	Cunoniaceae	138 156 173
<i>Weinmania racemosa</i>	Y	Australasia	Cunoniaceae	138 157
<i>Callitris glauca (columnaris)</i>	2	Australasia	Cupressaceae	154
<i>Callitris macleayana</i>	N	Australasia	Cupressaceae	175
<i>Callitris oblonga</i>	1	Australasia	Cupressaceae	120
<i>Calocedrus decurrens</i>	Y	North America	Cupressaceae	153 173
				138 144 147 148 151 153 155 157 163 169
<i>Chamaecyparis lawsoniana</i>	Y	North America	Cupressaceae	183
<i>Chamaecyparis obtusa</i>	2	Asia	Cupressaceae	138 157
<i>Chamaecyparis pisifera</i>	N	Asia	Cupressaceae	138 163
<i>Chamaecyparis thyoides</i>	1	North America	Cupressaceae	138
<i>Cupressocyparis leylandii</i>	Y		Cupressaceae	138 148 174
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Ice'	Y	Horticultural	Cupressaceae	120 143 173
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Pyramid'	1	Horticultural	Cupressaceae	149
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Limelight'	1	Horticultural	Cupressaceae	120
<i>Cupressus arizonica</i> var. <i>glabra</i>	N	North America	Cupressaceae	163
<i>Cupressus benthami (lusitanica</i> var. <i>benthami)</i>	1	North America	Cupressaceae	139
<i>Cupressus cashmeriana</i>	Y	Asia	Cupressaceae	148
<i>Cupressus ducloxiana</i>	2	Asia	Cupressaceae	120
<i>Cupressus funebris</i>	2	Asia	Cupressaceae	153 170
<i>Cupressus goveniana</i>	N	North America	Cupressaceae	183
<i>Cupressus guadalupensis</i>	1	South America	Cupressaceae	120
<i>Cupressus lusitanica</i>	Y	North America	Cupressaceae	143 147
				138 139 143 144 146 147 148 151 152 153 157 163 169 175 178
<i>Cupressus macrocarpa</i>	Y	North America	Cupressaceae	183
<i>Cupressus macrocarpa</i> 'Aurea Saligna'	Y	Horticultural	Cupressaceae	143 173
<i>Cupressus macrocarpa</i> 'Aurea'	1	North America	Cupressaceae	148 157 173 174
<i>Cupressus macrocarpa</i> 'Golden Pillar'	Y	North America	Cupressaceae	120
<i>Cupressus macrocarpa</i> 'Greenstead Magnificent'	Y	North America	Cupressaceae	120
<i>Cupressus macrocarpa</i> mutation -Hartw. ex Gord	N		Cupressaceae	120
				138 144 153 156 157 163 173 174 183
<i>Cupressus sempervirens</i>	2	Europe	Cupressaceae	163 173 174 183
<i>Cupressus sempervirens</i> 'Gracilis'	Y	Horticultural	Cupressaceae	120 149 169
<i>Cupressus sempervirens</i> 'Stricta'	Y	Horticultural	Cupressaceae	138 173 174
<i>Cupressus sempervirens</i> 'Swanes Gold'	Y	Horticultural	Cupressaceae	120 138
<i>Cupressus sempervirens</i> 'Totem Pole'	Y	Horticultural	Cupressaceae	120
<i>Cupressus sempervirens</i> var. <i>pyramidata</i>	N	Horticultural	Cupressaceae	153
<i>Cupressus torulosa</i>	Y	Asia	Cupressaceae	138 147 149 153 158
<i>Cupressus torulosa</i> 'Batley'	1	Horticultural	Cupressaceae	120
<i>Juniperus bermudiana</i>	2	North America	Cupressaceae	120

<i>Juniperus chinensis</i>	2	Asia	Cupressaceae	120 138 149
<i>Juniperus chinensis</i> 'Aurea'	2	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Blue Point'	2	Horticultural	Cupressaceae	120 173
<i>Juniperus chinensis</i> 'Columnaris Glauca'	1	Horticultural	Cupressaceae	120 149
<i>Juniperus chinensis</i> 'Densa Spartan'	2	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Expansa Aureospicata'	3	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Expansa Variegata'	2	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Gold Coast'	N	Horticultural	Cupressaceae	149
<i>Juniperus chinensis</i> 'Gold Star'	N	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Kaizuka Variegata'	2	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Kaizuka'	Y	Horticultural	Cupressaceae	120 142 149 170
<i>Juniperus chinensis</i> 'Kuriwao Gold'	2	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Plumosa Aurea'	Y	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Plumosa Aureovariegata'	2	Horticultural	Cupressaceae	120
<i>Juniperus chinensis</i> 'Pyramidalis'	Y	Horticultural	Cupressaceae	120 170
<i>Juniperus communis</i>	3	Europe, Asia, No	Cupressaceae	120
<i>Juniperus communis</i> 'Depressa Aurea'	Y	Horticultural	Cupressaceae	120
<i>Juniperus communis</i> 'Depressed Star'	Y	Horticultural	Cupressaceae	120
<i>Juniperus communis</i> 'Repanda'	Y	Horticultural	Cupressaceae	120
<i>Juniperus communis f. suecica</i> ('Fastigiata')	N	Horticultural	Cupressaceae	120
<i>Juniperus conferta</i>	Y	Asia	Cupressaceae	120 158
<i>Juniperus conferta</i> 'Blue Pacific'	3	Horticultural	Cupressaceae	120
<i>Juniperus conferta</i> 'Emerald Ruffles'	1	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Bar Harbour'	Y	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Blue Chip'	Y	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Douglasii'	2	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Emerald Spreader'	2	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Hughes'	3	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Marcella'	1	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Plumosa'	Y	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Turquoise Spreader'	1	Horticultural	Cupressaceae	120
<i>Juniperus horizontalis</i> 'Wiltonii'	3	Horticultural	Cupressaceae	120
<i>Juniperus pingii</i> 'Pygmaea'	2	Horticultural	Cupressaceae	120
<i>Juniperus procumbens</i>	2	Africa	Cupressaceae	120
<i>Juniperus procumbens</i> 'Nana'	Y	Horticultural	Cupressaceae	120
<i>Juniperus recurva</i>	N	Asia	Cupressaceae	146
<i>Juniperus recurva</i> var. <i>coxii</i>	Y	Asia	Cupressaceae	120 139
<i>Juniperus rigida</i>	Y	Asia	Cupressaceae	120
<i>Juniperus sabina</i> 'Broadmoor'	1	Horticultural	Cupressaceae	120
<i>Juniperus sabina</i> var. <i>tamariscifolia</i>	Y	Europe, Asia, No	Cupressaceae	120
<i>Juniperus sargentii</i> 'Glaucua'	2	Horticultural	Cupressaceae	120
<i>Juniperus scopulorum</i>	2	North America	Cupressaceae	120 138
<i>Juniperus scopulorum</i> 'Blue Heaven'	2	Horticultural	Cupressaceae	170
<i>Juniperus scopulorum</i> 'Colorado Green'	2	Horticultural	Cupressaceae	120
<i>Juniperus scopulorum</i> 'Grey Gleam'	Y	Horticultural	Cupressaceae	120
<i>Juniperus scopulorum</i> 'Moffetii'	2	Horticultural	Cupressaceae	120
<i>Juniperus scopulorum</i> 'Moonglow'	2	Horticultural	Cupressaceae	120
<i>Juniperus scopulorum</i> 'Skyrocket'	3	Horticultural	Cupressaceae	120
<i>Juniperus squamata</i>	N	Asia	Cupressaceae	120
<i>Juniperus squamata</i> 'Blue Carpet'	Y	Horticultural	Cupressaceae	120
<i>Juniperus squamata</i> 'Holger'	Y	Horticultural	Cupressaceae	120
<i>Juniperus squamata</i> 'Meyeri'	Y	Horticultural	Cupressaceae	120 178

<i>Juniperus squamata</i> 'Wilsoni'	3	Horticultural	Cupressaceae	158
<i>Juniperus taxifolia</i> var. <i>lutchuensis</i>	Y		Cupressaceae	120
<i>Juniperus thurifera</i> (<i>hispanica</i>)	1	Europe, Africa	Cupressaceae	120
<i>Juniperus virginiana</i>	3	North America	Cupressaceae	153
<i>Juniperus virginiana</i> 'Glaucua'	1	Horticultural	Cupressaceae	120
<i>Juniperus wallichiana</i> (<i>pseudosabina</i>)	1	Asia	Cupressaceae	120
<i>Juniperus x davaurica</i> 'Expansa'	1	Horticultural	Cupressaceae	120
<i>Juniperus x media</i> 'Gold Coast'	Y	Horticultural	Cupressaceae	120
<i>Juniperus x media</i> 'Plumosa Aurea'	Y	Horticultural	Cupressaceae	120
<i>Libocedrus bidwillii</i>	Y	Australasia	Cupressaceae	120 137 138 173
				120 137 138 149 153
				155 170 173 174 178
<i>Libocedrus plumosa</i>	Y	Australasia	Cupressaceae	183
<i>Thuja occidentalis</i>	Y	North America	Cupressaceae	138 173
<i>Thuja plicata</i>	Y	North America	Cupressaceae	138 143 158
<i>Thuja plicata</i> 'Aurea'	1	Horticultural	Cupressaceae	158
<i>Thujopsis dolobrata</i>	N	Asia	Cupressaceae	138
<i>Widdringtonia schwarizii</i>	N	Africa	Cupressaceae	153
<i>Davidia involucrata</i>	Y	Asia	Davidiaceae	173 183
<i>Elaeocarpus dentatus</i>	Y	Australasia	Elaeocarpaceae	157 158 173 178 183
<i>Elaeocarpus reticulatus</i>	N	Australasia	Elaeocarpaceae	156 157 170
<i>Arbutus unedo</i>	Y	Europe	Ericaceae	138 157 158 173
<i>Oxydendrum arboreum</i>	Y	North America	Ericaceae	173
<i>Rhododendron arboreum</i>	1	Asia	Ericaceae	144 146 153 157
<i>Acacia baileyana</i>	Y	Australasia	Fabaceae	148 158 173
<i>Acacia cardiophylla</i>	Y	Australasia	Fabaceae	158
<i>Acacia dealbata</i>	Y	Australasia	Fabaceae	158
<i>Acacia fimbriata</i>	1		Fabaceae	158
<i>Acacia florabunda</i>	Y	Australasia	Fabaceae	158
<i>Acacia longifolia</i>	Y	Australasia	Fabaceae	153 155 158 170
				143 147 153 168 175
<i>Acacia melanoxylon</i>	Y	Australasia	Fabaceae	178
<i>Acacia pravissima</i>	Y	Australasia	Fabaceae	158
				120 138 142 153 157
<i>Albizia julibrissin</i>	Y	Asia	Fabaceae	158
<i>Albizia julibrissin</i> 'Rosea Oriental Dawn'		Horticultural	Fabaceae	120
<i>Albizia julibrissin</i> 'Red Silk'	Y	Horticultural	Fabaceae	120
<i>Albizia julibrissin</i> 'Rosea'	Y	Horticultural	Fabaceae	120
<i>Albizia lophantha</i>	Y	Australasia	Fabaceae	138 158
<i>Bauhinia forficata</i>	N		Fabaceae	120
<i>Bauhinia galpinii</i> (<i>punctata</i>)	1	Africa	Fabaceae	120 160
<i>Bauhinia natalensis</i>	N		Fabaceae	120
<i>Bauhinia purpurea</i> (<i>triandra</i>)	3	Asia	Fabaceae	142 153 160 170
<i>Bauhinia scandens</i>	N		Fabaceae	120
<i>Bauhinia variegata</i>	1	Asia	Fabaceae	120
<i>Caesalpinia ferrea</i>		South America	Fabaceae	156
<i>Caesalpinia gillesii</i>	1	South America	Fabaceae	120
<i>Caesalpinia kavaensis</i>	N		Fabaceae	120
<i>Calliandra</i> 'Blushing Pixie'	3	Horticultural	Fabaceae	120 149
<i>Calliandra</i> 'Stuart Dower'	N	Horticultural	Fabaceae	142
<i>Calliandra tweedii</i>	N	South America	Fabaceae	120

<i>Cassia corymbosa</i> 'John Ball'	Y	South America	Fabaceae	138
<i>Cassia didymobotrya</i>	N	Africa	Fabaceae	142 173
<i>Cassia fistula</i>	N	Asia	Fabaceae	120
<i>Cassia leptophylla</i>	N	South America	Fabaceae	153
<i>Cassia multijuga</i>	N		Fabaceae	138
<i>Cassia tomentosa</i>	N	Asia	Fabaceae	142
<i>Castanospermum australe</i>	2	Australasia	Fabaceae	157 169 174 183
<i>Cercis canadensis</i>	Y	North America	Fabaceae	120
<i>Cercis canadensis</i> 'Forest Pansy'	Y	Horticultural	Fabaceae	120
<i>Cercis chinensis</i> 'Avondale'	Y	Horticultural	Fabaceae	120
<i>Cercis occidentalis</i>	N	North America	Fabaceae	120
<i>Cercis racemosa</i>	N	Asia	Fabaceae	120
				120 138 143 144 156
<i>Cercis siliquastrum</i>	Y	Europe	Fabaceae	174
<i>Cercis siliquastrum</i> 'Avondale'	1	Horticultural	Fabaceae	173
<i>Cercis yunnanensis</i>	N	Europe	Fabaceae	120
<i>Enterolobium contortisiliquum</i>	N	South America	Fabaceae	181
<i>Erythrina americana</i>	N		Fabaceae	120
<i>Erythrina caffra</i>	1	Africa	Fabaceae	120 163 170 173
				120 138 142 146 149
<i>Erythrina crista-galli</i>	Y	South America	Fabaceae	158 160 178 183
<i>Erythrina falcata</i>	N	South America	Fabaceae	120
<i>Erythrina humeana</i>	1	South America	Fabaceae	120
<i>Erythrina indica</i>	2	Asia	Fabaceae	138 148 183
<i>Erythrina latissima</i>	N		Fabaceae	120
<i>Erythrina livingstoniana</i>	N	Africa	Fabaceae	120
<i>Erythrina lysistemon</i>	N	Africa	Fabaceae	120 153
<i>Erythrina speciosa</i>	1	South America	Fabaceae	138 148 160
<i>Erythrina x bidwillii</i>	N	Australasia	Fabaceae	120
				146 153 157 169 173
<i>Erythrina x sykesii</i>	N	Australasia	Fabaceae	146 153 157 169 173
<i>Erythrina zeyheri</i>	N		Fabaceae	120
<i>Gleditsia japonica</i>	N	Asia	Fabaceae	120
<i>Gleditsia sinensis</i>	1	Asia	Fabaceae	120
				142 143 148 149 152
<i>Gleditsia triacanthos</i>	3	North America	Fabaceae	153 158 163 171 173
<i>Gleditsia triacanthos f. inermis</i>	Y	North America	Fabaceae	138 148
<i>Gleditsia triacanthos f. inermis</i> 'Emerald Cascade'	Y	Horticultural	Fabaceae	120
<i>Gleditsia triacanthos f. inermis</i> 'Limelight'	Y	Horticultural	Fabaceae	120
<i>Gleditsia triacanthos f. inermis</i> 'Moraine'	N	Horticultural	Fabaceae	120
<i>Gleditsia triacanthos f. inermis</i> 'Ruby Lace'	Y	Horticultural	Fabaceae	120 149
<i>Gleditsia triacanthos f. inermis</i> 'Shademaster'	1	Horticultural	Fabaceae	120 173
<i>Gleditsia triacanthos f. inermis</i> 'Skyline'	Y	Horticultural	Fabaceae	120 138 173
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Y	Horticultural	Fabaceae	120 138 149 173
<i>Gymnocladus dioica</i>	Y	North America	Fabaceae	170
<i>Racosperma melanoxydon</i>	N	Australasia	Fabaceae	148
<i>Robinia hispida</i>	N	North America	Fabaceae	120
				138 139 144 146 157
<i>Robinia pseudoacacia</i>	Y	North America	Fabaceae	158 173
<i>Robinia pseudoacacia</i> 'Bessoniana'	Y	North America	Fabaceae	120

<i>Robinia pseudoacacia</i> 'Casque Rouge'	Y	North America	Fabaceae	138
<i>Robinia pseudoacacia</i> 'Frisia'	Y	North America	Fabaceae	120 138 158 173
<i>Robinia pseudoacacia</i> 'Lace Lady'	3	North America	Fabaceae	120
<i>Robinia pseudoacacia</i> 'Rozynskiana'	3	North America	Fabaceae	120
<i>Robinia pseudoacacia</i> 'Umbraculifera'	Y	North America	Fabaceae	120
<i>Robinia pseudoacacia</i> 'Unifoliola'	1	North America	Fabaceae	120
<i>Robinia x ambigua</i> 'Decaisneana'	Y	Horticultural	Fabaceae	120
<i>Robinia x slavini</i> 'Hillieri'	Y	North America	Fabaceae	120
<i>Schizolobium parahyabum</i>	2	South America	Fabaceae	156 173
<i>Sesbania marginata</i>	N		Fabaceae	173
<i>Sophora</i> 'Dragonsgold'	Y	Horticultural	Fabaceae	158
<i>Sophora chathamica</i>	N	Australasia	Fabaceae	120
<i>Sophora chrysophylla</i>	N		Fabaceae	120
<i>Sophora japonica</i>	Y	Asia	Fabaceae	149 153 173
<i>Sophora japonica</i> 'Pendula'	2	Asia	Fabaceae	120 149
<i>Sophora longicarinata</i>	N	Australasia	Fabaceae	120
<i>Sophora lucens</i>	N		Fabaceae	173
				120 137 138 139 141 142 143 144 146 148 149 153 157 158 173
<i>Sophora microphylla</i>	Y	Australasia	Fabaceae	176 183
<i>Sophora microphylla</i> (weeping form)	1	Australasia	Fabaceae	120
<i>Sophora microphylla</i> 'Dragons Gold'	N	Horticultural	Fabaceae	120 137 142 149
<i>Sophora microphylla</i> 'Earlygold'	N	Horticultural	Fabaceae	120 142
<i>Sophora microphylla</i> 'Goldies Mantle'	1	Horticultural	Fabaceae	142
<i>Sophora microphylla</i> 'Goldilocks'	N	Horticultural	Fabaceae	120 142
<i>Sophora microphylla</i> 'Te Atatu Gold'	N	Horticultural	Fabaceae	120
<i>Sophora microphylla</i> 'Titi Island'	N	Horticultural	Fabaceae	120
<i>Sophora microphylla</i> 'Twister'	N	Horticultural	Fabaceae	120
<i>Sophora microphylla</i> f. <i>longicarinata</i> (<i>treadwellii</i>)	Y	Horticultural	Fabaceae	137 170
<i>Sophora microphylla</i> var. <i>fulvida</i>	Y	Horticultural	Fabaceae	120 137
<i>Sophora mollis</i>	N	Asia	Fabaceae	120
<i>Sophora prostrata</i>	Y	Australasia	Fabaceae	120 137 138 142
<i>Sophora secundiflora</i>	N	North America	Fabaceae	120
				120 137 138 142 148 157 158 169 170 172
<i>Sophora tetraptera</i>	Y	Australasia	Fabaceae	173 174
<i>Sophora tetraptera</i> 'Gnome'	Y	Australasia	Fabaceae	137
<i>Tipuana tipu</i>	Y	South America	Fabaceae	138 147 173
<i>Virgilia capensis</i>	N	Africa	Fabaceae	138
<i>Virgilia capensis</i> 'Keurboom'	Y	Africa	Fabaceae	158
<i>Virgilia divaricata</i>	Y	Africa	Fabaceae	148 158
<i>Castanea dentata</i>	N	North America	Fagaceae	138
				120 138 143 144 151 157 168 169 183
<i>Castanea sativa</i>	Y	Europe, Asia, Afr	Fagaceae	
<i>Castanopsis cuspidata</i> (<i>Quercus cuspidata</i>)	N	Asia	Fagaceae	120
				138 139 142 143 144 146 149 151 152 157 158 169 173 183
<i>Fagus sylvatica</i>	Y	Europe	Fagaceae	

<i>Fagus sylvatica</i> 'Cockleshell'	1	Europe	Fagaceae	120
<i>Fagus sylvatica</i> 'Dawyck Purple'	2	Europe	Fagaceae	149
<i>Fagus sylvatica</i> 'Riversii' ('Purpurea Major')	N	Europe	Fagaceae	120
<i>Fagus sylvatica</i> f. <i>purpurea</i>	N	Europe	Fagaceae	120 138 157 169 170 173 174 183
<i>Lithocarpus edulis</i>	1	Asia	Fagaceae	170 183
<i>Nothofagus antarctica</i>	N	South America	Fagaceae	120
<i>Nothofagus dombeyi</i>	1	South America	Fagaceae	120
<i>Nothofagus fusca</i>	Y	Australasia	Fagaceae	120 137 138
<i>Nothofagus menziesii</i>	Y	Australasia	Fagaceae	120 137 138 149 153 158 173 183
<i>Nothofagus moorei</i>	N	Australasia	Fagaceae	120 173
<i>Nothofagus obliqua</i>	Y	South America	Fagaceae	120
<i>Nothofagus solandri</i>	Y	Australasia	Fagaceae	183
<i>Nothofagus solandri</i> var. <i>cliffortioides</i>	Y	Australasia	Fagaceae	120 137
<i>Nothofagus solandri</i> var. <i>solandri</i>	N	Australasia	Fagaceae	137
<i>Nothofagus truncata</i>	2	Australasia	Fagaceae	120 137 141 142 153 169 173
<i>Quercus acutissima</i>	N	Asia	Fagaceae	120 148
<i>Quercus afares</i>	2	Africa	Fagaceae	138
<i>Quercus canariensis</i>	Y	Europe, Africa	Fagaceae	120 143 153 157 169 173 181 183
<i>Quercus cerris</i>	Y	Europe, Asia	Fagaceae	138 143 146 147 153 157 183
<i>Quercus coccinea</i>	Y	North America	Fagaceae	120 143 146 153 158 173 178
<i>Quercus douglasii</i>	N	North America	Fagaceae	120
<i>Quercus falcata</i>	N	Europe	Fagaceae	183
<i>Quercus frainetto</i>	1	Europe	Fagaceae	147 183
<i>Quercus ilex</i>	Y	Europe	Fagaceae	138 143 144 146 147 148 151 153 157 158 163 168 169 170 175 181 183
<i>Quercus nigra</i>	N	North America	Fagaceae	183
<i>Quercus palustris</i>	Y	North America	Fagaceae	120 138 142 143 144 146 147 152 153 157 158 168 169 170 172 178 183
<i>Quercus petraea</i>	3	Europe, Asia	Fagaceae	153 157 158 178
<i>Quercus robur</i>	Y	Europe	Fagaceae	138 139 143 144 146 147 148 151 153 155 157 163 167 168 169 170 172 173 175 176 178 181 183
<i>Quercus robur</i> 'Fennessii'	N	Europe	Fagaceae	120
<i>Quercus rubra</i>	Y	North America	Fagaceae	120 138 144 147 152 157 158 170 173 183

<i>Quercus suber</i>	Y	Europe, N Africa	Fagaceae	120 138 148 153 169 172 183
<i>Quercus variabilis</i>	Y	Asia	Fagaceae	120
<i>Quercus velutina</i>	N	North America	Fagaceae	120
<i>Quercus virginiana</i>	N	North America	Fagaceae	172
<i>Azara lanceolata</i>	1	South America	Flacourtiaceae	158
<i>Azara microphylla</i>	Y	South America	Flacourtiaceae	138 158 173
<i>Idesia polycarpa</i>	Y	Asia	Flacourtiaceae	138 152 157 158 169 174
<i>Garrya elliptica</i>	Y	North America	Garryaceae	138 173
<i>Ginkgo biloba</i>	Y	Asia	Ginkgoaceae	138 143 144 146 148 152 153 156 157 158 169 170 172 173 174 176 183
<i>Ginkgo biloba</i> 'Saratoga'	Y	Horticultural	Ginkgoaceae	138
<i>Greyia sutherlandii</i>	N	Africa	Greyiaceae	148
<i>Liquidambar formosana</i>	Y	Asia	Hamamelidaceae	138 146
<i>Liquidambar styraciflua</i>	Y	North America	Hamamelidaceae	138 143 144 146 147 148 152 153 163 168 169 170 172 173 178 183
<i>Parrotia persica</i>	Y	Asia	Hamamelidaceae	138 153 158 173
<i>Aesculus californica</i>	N	North America	Hippocastanaceae	120
<i>Aesculus hippocastanum</i>	Y	Europe	Hippocastanaceae	120 138 144 146 149 152 153 154 157 158 169 178 183
<i>Aesculus indica</i>	Y	Asia	Hippocastanaceae	120
<i>Aesculus pavia</i>	Y	North America	Hippocastanaceae	120 173
<i>Aesculus turbinata</i>	2		Hippocastanaceae	120
<i>Aesculus x carnea</i> (<i>hippocastanum x pavia</i>)	Y	North America	Hippocastanaceae	120 138 143 153 157 158
<i>Aesculus x carnea</i> 'Briotii'	Y	North America	Hippocastanaceae	173
<i>Aesculus x neglecta</i> 'Erythroblastos'	2	Horticultural	Hippocastanaceae	120
<i>Carya illinoinensis</i>	3	North America	Juglandaceae	138 169 183
<i>Juglans ailantifolia</i>	Y	Asia	Juglandaceae	138 183
<i>Juglans neo-tropica</i>	1		Juglandaceae	173
<i>Juglans nigra</i>	Y	North America	Juglandaceae	1381 143
<i>Juglans regia</i>	Y	Europe, Asia	Juglandaceae	138 143 157 170 175 178 183
<i>Beilschmiedia tarairae</i>	Y	Australasia	Lauraceae	120 137 138 143 149 153 157 158 170 171 173 183
<i>Beilschmiedia tawa</i>	Y	Australasia	Lauraceae	120 137 141 142 153
<i>Cinnamomum camphora</i>	Y	Asia, Africa	Lauraceae	120 138 139 144 146 147 148 151 153 154 156 157 163 169 172 173 174 175 181 183
<i>Cinnamomum laureirii</i>	N		Lauraceae	120 173

<i>Laurus canariensis</i>	N		Lauraceae	183
				120 138 139 143 144 146 148 151 153 163
<i>Laurus nobilis</i>	Y	Asia	Lauraceae	168 169 173 176
<i>Lindera angustifolia</i>	1		Lauraceae	120
<i>Lindera erythrocarpa</i>	1		Lauraceae	120
<i>Lindera obtusiloba</i>	2	Asia	Lauraceae	120
<i>Lindera strychnifolia</i>	1		Lauraceae	120
<i>Neolitsea sericea (glauca)</i>	1	Asia	Lauraceae	120
				138 139 155 157 158
<i>Persea americana</i>	N	North America, S	Lauraceae	183
<i>Persea americana 'Hass'</i>	1		Lauraceae	120
<i>Persea thunbergii</i>	N	Asia	Lauraceae	120
<i>Sassafras officinale (albidum)</i>	1	North America	Lauraceae	149
<i>Sassafras tzumu</i>	2	Asia	Lauraceae	120
<i>Aloe bainesii</i>	Y	Africa	Liliaceae	153 183
<i>Buddleia 'Honey Joy'</i>	N	Horticultural	Loganiaceae	120
<i>Buddleia 'Lochinch' (davidii x fallowiana)</i>	Y	Horticultural	Loganiaceae	120
<i>Buddleia alternifolia</i>	Y	Asia	Loganiaceae	120
<i>Buddleia asiatica 'Spring Promise'</i>	3	Horticultural	Loganiaceae	120
<i>Buddleia auriculata</i>	N	Africa	Loganiaceae	120
<i>Buddleia colvilei</i>	3	Asia	Loganiaceae	120
<i>Buddleia crispa</i>	2	Asia	Loganiaceae	120
<i>Buddleia davidii 'Nanho Blue'</i>	3	Horticultural	Loganiaceae	120
<i>Buddleia davidii 'Petite Indigo'</i>	1	Horticultural	Loganiaceae	120
<i>Buddleia davidii 'Pink Delight'</i>	Y	Horticultural	Loganiaceae	120
<i>Buddleia fallowiana</i>	2	Asia	Loganiaceae	120
<i>Buddleia farreri</i>	N	Asia	Loganiaceae	120
<i>Buddleia globosa</i>	Y	South America	Loganiaceae	120
<i>Buddleia lindleyana</i>	2	Asia	Loganiaceae	120
<i>Buddleia madagascariensis</i>	2	Africa	Loganiaceae	120
<i>Buddleia x weyeriana 'Gold Glow'</i>	Y	Horticultural	Loganiaceae	120
<i>Buddleia x weyeriana 'Sungold'</i>	N	Horticultural	Loganiaceae	120
<i>Lagerstroemia indica</i>	1	Asia	Lythraceae	138 153 158 173
				120 138 139 143 144 148 151 153 163 169
<i>Liriodendron tulipifera</i>	Y	North America	Magnoliaceae	170 173 178 183
<i>Liriodendron tulipifera 'Arnold'</i>	Y	Horticultural	Magnoliaceae	173
<i>Liriodendron tulipifera 'Aureum'</i>	N	Horticultural	Magnoliaceae	120
<i>Liriodendron tulipifera 'Fastigiatum'</i>	3	Horticultural	Magnoliaceae	138
<i>Magnolia 'Albatross'</i>	1	Horticultural	Magnoliaceae	120
<i>Magnolia 'Ann' (Kosar hyd)</i>	1	Horticultural	Magnoliaceae	120
<i>Magnolia 'Apollo' (Jury hyd)</i>	Y	Horticultural	Magnoliaceae	120
<i>Magnolia 'Athene' (Jury hyd)</i>	Y	Horticultural	Magnoliaceae	120
<i>Magnolia 'Atlas' (Jury hyd)</i>	Y	Horticultural	Magnoliaceae	120
<i>Magnolia 'Black Tulip'</i>	N	Horticultural	Magnoliaceae	120
<i>Magnolia 'Caerhays Belle''</i>	Y	Horticultural	Magnoliaceae	120
<i>Magnolia 'Charles Coates' (sieboldii x tripetala)</i>	N	Horticultural	Magnoliaceae	120
<i>Magnolia 'Delicatissima'</i>	N	Horticultural	Magnoliaceae	120
<i>Magnolia 'Galaxy'</i>	2	Horticultural	Magnoliaceae	138

<i>Magnolia</i> 'George Henry Kern'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Heaven Scent' (Gresham hyd)	Y	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Iolanthe' (Jury hyd)	Y	Horticultural	Magnoliaceae	120 138 149
<i>Magnolia</i> 'Jersey Belle'	1	Horticultural	Magnoliaceae	148
<i>Magnolia</i> 'Koban Dori'	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Manchu Fan' (Gresham hyd)	Y	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Mark Jury' (Jury hyd)	3	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Maryland'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Milky Way' (Jury hyd)	Y	Horticultural	Magnoliaceae	120 149
<i>Magnolia</i> 'New Purple' (Caerhay's seedling)	Y	Horticultural	Magnoliaceae	149
<i>Magnolia</i> 'Orchid'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Paul Cook'	3	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Peppermint Stick' (Gresham hyd)	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Pinkie' (Kosar hyd)	3	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Princess Margaret'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Pristine'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Purple Eye'	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Rouged Alabaster'	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Royal Crown' (Gresham hyd)	3	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Ruby'	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Sayonara' (Gresham hyd)	Y	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Serene' (Jury hyd)	Y	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Snow Queen'		Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Spectrum'	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Star Wars'	Y	Horticultural	Magnoliaceae	120 149
<i>Magnolia</i> 'Susan' (Kosar hyd)	Y	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Sweetheart' (Caerhays Belle seedling)	Y	Horticultural	Magnoliaceae	120 149
<i>Magnolia</i> 'Tina Durio'	2	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Vulcan' (Jury hyd)	Y	Horticultural	Magnoliaceae	120 142 149
<i>Magnolia</i> 'Wadas Memory'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> 'Yellow Fever'	Y	Horticultural	Magnoliaceae	120 149
<i>Magnolia</i> 'Yellowbird'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia acuminata</i> var. <i>subcordata</i>	N	North America	Magnoliaceae	120
<i>Magnolia acuminata</i> var. <i>subcordata</i> 'Miss Honey'	N	Horticultural	Magnoliaceae	120
<i>Magnolia amoena</i>	1	North America	Magnoliaceae	120
<i>Magnolia ashei</i>	1	North America	Magnoliaceae	120
<i>Magnolia biondii</i>	1	Asia	Magnoliaceae	120
<i>Magnolia campbellii</i>	Y	Asia	Magnoliaceae	120 139 173
<i>Magnolia campbellii</i> 'Charles Raffill'	Y	Horticultural	Magnoliaceae	120 170
<i>Magnolia campbellii</i> 'Darjeeling'	3	Horticultural	Magnoliaceae	120
<i>Magnolia campbellii</i> 'Iolanthe'	N	Horticultural	Magnoliaceae	173
<i>Magnolia campbellii</i> 'Kew Surprise'	N	Horticultural	Magnoliaceae	120
<i>Magnolia campbellii</i> 'Lanarth'	3	Horticultural	Magnoliaceae	120 173
<i>Magnolia campbellii</i> 'Strybing White'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia campbellii</i> ssp. <i>mollicomata</i>	N	Horticultural	Magnoliaceae	120
<i>Magnolia campbellii</i> var. <i>alba</i>	1	Asia	Magnoliaceae	120
<i>Magnolia campbellii</i> var. <i>alba</i> 'Chyverton'	N	Horticultural	Magnoliaceae	120
<i>Magnolia coco</i>	N	Asia	Magnoliaceae	149
<i>Magnolia cylindrica</i>	2	Asia	Magnoliaceae	120
<i>Magnolia dawsoniana</i>	N	Asia	Magnoliaceae	120
<i>Magnolia delavayi</i>	2	Asia	Magnoliaceae	120 173
<i>Magnolia denudata</i>	Y	Asia	Magnoliaceae	120 170 173

<i>Magnolia denudata</i> 'Forest's Pink'	2	Horticultural	Magnoliaceae	120
<i>Magnolia globosa</i> (<i>tsarongensis</i>)	N	Asia	Magnoliaceae	120
				120 138 139 143 144 146 147 148 152 163 169 173 174 175 178
<i>Magnolia grandiflora</i>	Y	North America	Magnoliaceae	181 183
<i>Magnolia grandiflora</i> 'Edith Bogue'	N	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'Ferruginea'	Y	Horticultural	Magnoliaceae	120 170
<i>Magnolia grandiflora</i> 'Goliath'	1	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'Little Gem'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'Majestic Beauty'	2	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'Russet'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'Samuel Sommers'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'St Mary'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> 'Victoria'	N	Horticultural	Magnoliaceae	120
<i>Magnolia grandiflora</i> var. <i>furfuracea</i>	N		Magnoliaceae	139
<i>Magnolia hypoleuca</i> (<i>obovata</i>)	1	Asia	Magnoliaceae	120 139
<i>Magnolia kobus</i>	Y	Asia	Magnoliaceae	120
<i>Magnolia kobus</i> 'Norman Gould'	N	Horticultural	Magnoliaceae	120
<i>Magnolia kobus</i> var. <i>stellata</i> 'Dawn'	N	Horticultural	Magnoliaceae	120
<i>Magnolia kobus</i> var. <i>stellata</i> 'Waterlily'	N	Horticultural	Magnoliaceae	120
<i>Magnolia liliiflora</i> (<i>purpurea</i> , <i>pentapeta</i>)	Y	Asia	Magnoliaceae	120 139 148 149 173
<i>Magnolia liliiflora</i> 'Mini Mouse'	N	Horticultural	Magnoliaceae	120
<i>Magnolia liliiflora</i> 'Nigra'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia loebneri</i> 'Leonard Messel'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia loebneri</i> 'Merril'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia macrophylla</i>	Y	North America	Magnoliaceae	120 149
<i>Magnolia macrophylla</i> var. <i>ashei</i>	N	North America	Magnoliaceae	120
<i>Magnolia nitida</i>	1	Asia	Magnoliaceae	120
<i>Magnolia officinalis</i> var. <i>biloba</i>	N	Asia	Magnoliaceae	120
<i>Magnolia salicifolia</i>	3	Asia	Magnoliaceae	120
<i>Magnolia sargentiana</i>	N	Asia	Magnoliaceae	120
<i>Magnolia sargentiana</i> var. <i>robusta</i>	1	Asia	Magnoliaceae	120
<i>Magnolia sieboldii</i>	Y	Asia	Magnoliaceae	120
<i>Magnolia sieboldii</i> 'Red Eye'	N	Horticultural	Magnoliaceae	120
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Burncoose'	1	Horticultural	Magnoliaceae	120
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Copeland Court'	1	Horticultural	Magnoliaceae	120
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Diva'	2	Horticultural	Magnoliaceae	120
<i>Magnolia stellata</i>	Y	Asia	Magnoliaceae	120 149 173
<i>Magnolia stellata</i> 'Dawn'	1	Horticultural	Magnoliaceae	120
<i>Magnolia stellata</i> 'King Rose'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia stellata</i> 'Rosea'	3	Horticultural	Magnoliaceae	149
<i>Magnolia stellata</i> 'Royal Star'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia stellata</i> 'Waterlily'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia tripetala</i>	1	North America	Magnoliaceae	120
<i>Magnolia wilsonii</i>	3	Asia	Magnoliaceae	120
<i>Magnolia</i> x <i>proctoriana</i> (<i>kobus</i> x <i>salicifolia</i>)	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> x <i>brooklynensis</i> 'Evamaria'	N	Horticultural	Magnoliaceae	120
<i>Magnolia</i> x <i>brooklynensis</i> 'Woodsman'	Y	Horticultural	Magnoliaceae	120

<i>Magnolia x soulangeana</i> (<i>denudata x liliflora</i>)	Y	Horticultural	Magnoliaceae	120 139 148 169 170 173 176
<i>Magnolia x soulangeana</i> 'Alba Superba'	N	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'Alexandrina'	3	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'Burgandy'	1	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'Grace McDade'	N	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'Lennei'	3	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'Picture'	1	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'Rustica Rubra'	Y	Horticultural	Magnoliaceae	120
<i>Magnolia x soulangeana</i> 'San Jose'	Y	Horticultural	Magnoliaceae	120 170
<i>Magnolia x thompsoniana</i> (<i>tripetala x virginiana</i>)	N	Horticultural	Magnoliaceae	120
<i>Magnolia x weiseneri</i>	2		Magnoliaceae	120
<i>Michelia</i> 'Bubbles' (<i>figo x doltsopa</i>)	Y	Horticultural	Magnoliaceae	120
<i>Michelia champaca</i>	N	Asia	Magnoliaceae	120 153 170 173
<i>Michelia compressa</i>	N	Asia	Magnoliaceae	120
				120 137 138 139 142 149 153 157 170 171 173
<i>Michelia doltsopa</i>	Y	Asia	Magnoliaceae	
<i>Michelia figo</i>	Y	Asia	Magnoliaceae	120 149 153 157
<i>Michelia languinosa</i> (<i>velutina</i>)	2	Asia	Magnoliaceae	120 149
<i>Michelia maudiae</i>	2	Asia	Magnoliaceae	120
<i>Michelia x foggi</i> 'Mixed up Miss'	2	Horticultural	Magnoliaceae	120
<i>Michelia x foggi</i> 'Touch of Pink'	Y	Horticultural	Magnoliaceae	120
<i>Michelia yunnanensis</i>	Y	Asia	Magnoliaceae	120
<i>Hoheria angustifolia</i>	Y	Australasia	Malvaceae	173
				138 157 158 168 173
<i>Hoheria populnea</i>	Y	Australasia	Malvaceae	
<i>Hoheria populnea</i> 'Alba Variegata'	Y	Horticultural	Malvaceae	138
<i>Hoheria populnea</i> 'Variegata'	Y	Horticultural	Malvaceae	138 158
<i>Hoheria sexstylosa</i>	Y	Australasia	Malvaceae	138 158
				138 147 148 163 169 171 173 175 183
<i>Lagunaria pattersonii</i>	Y	Australasia	Malvaceae	
<i>Plagianthus regius</i>	Y	Australasia	Malvaceae	138
<i>Tibouchina urvilleana</i>	N	South America	Melastomataceae	148
<i>Dysoxylum pachyphyllum</i>	N	Australasia	Meliaceae	173
				137 138 141 143 155 157 158 169 170 171 172 173 174 183
<i>Dysoxylum spectabile</i>	Y	Australasia	Meliaceae	
				138 143 146 148 152 153 168 169 170 173
<i>Melia azedarach</i>	Y	Australasia, Asia	Meliaceae	183
<i>Toona ciliata</i>	N	Australasia, Asia	Meliaceae	154 156
<i>Toona sinensis</i>	3	Asia	Meliaceae	156
<i>Broussonetia papyrifera</i>	N	Asia	Monimaceae	138
<i>Laurelia novae-zelandiae</i>	Y	Australasia	Monimaceae	170 173
<i>Ficus auriculata</i>	N	Asia	Moraceae	120
<i>Ficus benghalensis</i>	N	Asia	Moraceae	120
				120 138 158 167 170
<i>Ficus carica</i>	N	Asia	Moraceae	
<i>Ficus carica</i> 'Lisa'	N	Horticultural	Moraceae	120

<i>Ficus cordata</i>	N	Australasia	Moraceae	120 167
<i>Ficus elastica</i>	1	Asia	Moraceae	138 142 158
<i>Ficus gracilides</i>	N		Moraceae	148
<i>Ficus lyrata</i>	1	Africa	Moraceae	120
				120 138 139 144 146 147 148 151 153 157 163 168 169 171 175
<i>Ficus macrophylla</i>	1	Australasia	Moraceae	178 183
<i>Ficus microcarpa</i>	N	Asia	Moraceae	120 160
<i>Ficus obliqua</i>	N		Moraceae	120 175
<i>Ficus religiosa</i>	N	Asia	Moraceae	142 173
<i>Ficus roxburghii</i>	1		Moraceae	156
				120 139 142 144 147 148 151 153 155 157 169 173 175 183
<i>Ficus rubiginosa</i>	N	Australasia	Moraceae	120 148
<i>Ficus superba</i> var. <i>henneana</i>	N	Australasia	Moraceae	
<i>Morus alba</i>	Y	Asia	Moraceae	120 138 146 158 174
<i>Morus alba</i> 'Pendula'	3	Horticultural	Moraceae	120 146
<i>Morus rubra</i>	2	North America	Moraceae	143
<i>Myoporum laetum</i>	Y	Australasia	Myoporaceae	138 143 157 158 168
<i>Myoporum lanceolatum</i>	N	Australasia	Myoporaceae	158
<i>Myrsine australis</i>	Y	Australasia	Myrsinaceae	138 143 157 158 173
<i>Myrsine salicina</i>	Y	Australasia	Myrsinaceae	138
				138 144 147 148 151 153 155 157 163 169 170 173 174 175
<i>Acmena smithii</i>	Y	Australasia	Myrtaceae	
<i>Agonis flexuosa</i>	Y	Australasia	Myrtaceae	138 146 147 148 153 154 157 158 168 173
<i>Agonis juniperina</i>	3	Australasia	Myrtaceae	138 153 157 158
<i>Angophora costata</i>	2	Australasia	Myrtaceae	156 178
<i>Backhousia citriodora</i>	2	Australasia	Myrtaceae	138 157 158 173
<i>Callistemon citrinus</i>	Y	Australasia	Myrtaceae	138 148 157 173
<i>Callistemon rigidus</i>	1	Australasia	Myrtaceae	155
<i>Callistemon viminalis</i>	Y	Australasia	Myrtaceae	157
<i>Corymbia calophylla</i>	N	Australasia	Myrtaceae	153 154
<i>Corymbia citriodora</i>	N	Australasia	Myrtaceae	153 154
<i>Corymbia ficifolia</i>	N	Australasia	Myrtaceae	152 153 154 155
<i>Corymbia maculata</i>	N	Australasia	Myrtaceae	153
<i>Eucalyptus aggregata</i>	1	Australasia	Myrtaceae	155
<i>Eucalyptus bicostata</i>	2	Australasia	Myrtaceae	152
<i>Eucalyptus bosistoana</i>	1	Australasia	Myrtaceae	157
<i>Eucalyptus botryoides</i>	Y	Australasia	Myrtaceae	152 153 154 155 157
<i>Eucalyptus califera</i>	N	Australasia	Myrtaceae	157
<i>Eucalyptus caliginosa</i> (<i>E. baxteri</i> & <i>E. blaxlandii</i>)	1	Australasia	Myrtaceae	155

<i>Eucalyptus capitellata</i>	1	Australasia	Myrtaceae	155 157
<i>Eucalyptus cinerea</i>	Y	Australasia	Myrtaceae	138 153 154 155 158
<i>Eucalyptus citriodora</i>	Y	Australasia	Myrtaceae	153
<i>Eucalyptus cladocalyx</i>	1	Australasia	Myrtaceae	155
<i>Eucalyptus consideniensis</i>	N	Australasia	Myrtaceae	155
<i>Eucalyptus cordada</i>	Y	Australasia	Myrtaceae	138
<i>Eucalyptus delegatensis</i>	Y	Australasia	Myrtaceae	158
<i>Eucalyptus diversicolor</i>	2	Australasia	Myrtaceae	155
<i>Eucalyptus elata</i>	2	Australasia	Myrtaceae	144
<i>Eucalyptus eugenioides</i>	2	Australasia	Myrtaceae	155 157
<i>Eucalyptus fastigata</i>	Y	Australasia	Myrtaceae	144 155
<i>Eucalyptus ficifolia</i>	Y	Australasia	Myrtaceae	138 148 157 158 163 167 175 183
<i>Eucalyptus fraxinoides</i>	Y	Australasia	Myrtaceae	157 158
<i>Eucalyptus globoidea</i>	Y	Australasia	Myrtaceae	153 154 155 158
<i>Eucalyptus globulus</i>	Y	Australasia	Myrtaceae	138 153
<i>Eucalyptus grandis</i>	1	Australasia	Myrtaceae	152 154 156 169
<i>Eucalyptus guilfoylei</i>	1	Australasia	Myrtaceae	155
<i>Eucalyptus gunnii</i>	Y	Australasia	Myrtaceae	138
<i>Eucalyptus leucoxydon</i>	Y	Australasia	Myrtaceae	138 154 157 158
<i>Eucalyptus longifolia</i>	N	Australasia	Myrtaceae	155
<i>Eucalyptus macarthurii</i>	1	Australasia	Myrtaceae	151 152 155 157
<i>Eucalyptus major</i>	N	Australasia	Myrtaceae	151
<i>Eucalyptus megacornuta</i>	1	Australasia	Myrtaceae	153
<i>Eucalyptus microcorys</i>	3	Australasia	Myrtaceae	148 153 155
<i>Eucalyptus muelleriana</i>	Y	Australasia	Myrtaceae	153 155 157
<i>Eucalyptus nicholii</i>	Y	Australasia	Myrtaceae	138 143 152 154 158 173
<i>Eucalyptus obliqua</i>	Y	Australasia	Myrtaceae	152 153 154 155 157 173
<i>Eucalyptus ovata</i>	Y	Australasia	Myrtaceae	153 155 157
<i>Eucalyptus pauciflora</i>		Australasia	Myrtaceae	138 183
<i>Eucalyptus perriniana</i>	3	Australasia	Myrtaceae	154
<i>Eucalyptus pilularis</i>	Y	Australasia	Myrtaceae	153 155
<i>Eucalyptus piperita</i>	2	Australasia	Myrtaceae	155
<i>Eucalyptus pulchella</i>	Y	Australasia	Myrtaceae	155
<i>Eucalyptus punctata</i>	N	Australasia	Myrtaceae	155
<i>Eucalyptus radiata</i>	2	Australasia	Myrtaceae	155 157
<i>Eucalyptus resinifera</i>	1	Australasia	Myrtaceae	155
<i>Eucalyptus robusta</i>	2	Australasia	Myrtaceae	155
<i>Eucalyptus saligna</i>	Y	Australasia	Myrtaceae	152 153 154 155 158 178 183
<i>Eucalyptus scoparia</i>	1	Australasia	Myrtaceae	138
<i>Eucalyptus sideroxylon</i>	Y	Australasia	Myrtaceae	138 158 168
<i>Eucalyptus sieberi</i>	1	Australasia	Myrtaceae	155
<i>Eucalyptus spathulata</i>	1	Australasia	Myrtaceae	154
<i>Eucalyptus tereticornis</i>	1	Australasia	Myrtaceae	155
<i>Eucalyptus viminalis</i>	Y	Australasia	Myrtaceae	152 155 158
<i>Eugenia australe</i> (Syn. <i>Syzygium australe</i>)	Y	Australasia	Myrtaceae	138 147 158 163 174 175 181
<i>Eugenia myrtifolia</i>	1		Myrtaceae	183
<i>Feijoa sellowiana</i>	N	South America	Myrtaceae	157 158 173

				138 153 155 158 170 171 172 173 178 183
<i>Kunzea ericiodes</i>	Y	Australasia	Myrtaceae	
<i>Leptomyrthus bullata</i>	N	Australasia	Myrtaceae	173
<i>Leptospermum laevigatum</i>	2	Australasia	Myrtaceae	148
<i>Leptospermum macrocarpum</i>	N	Australasia	Myrtaceae	138
<i>Leptospermum macrocarpum</i> 'Copper Sheen'	2	Horticultural	Myrtaceae	138
<i>Leptospermum nitidum</i> 'Copper Sheen'	Y	Horticultural	Myrtaceae	138
<i>Leptospermum petersonii</i>	Y	Australasia	Myrtaceae	173
				138 168 170 171 171
<i>Leptospermum scoparium</i>	Y	Australasia	Myrtaceae	172 178
<i>Lophomyrtus bullata</i>	Y	Australasia	Myrtaceae	138
<i>Lophomyrtus obcordata</i>	Y	Australasia	Myrtaceae	138
				138 148 153 154 156
<i>Lophostemon confertus</i>	Y	Australasia	Myrtaceae	158 163 173
<i>Melaleuca leucadendra</i>	1	Australasia	Myrtaceae	170
<i>Melaleuca linariifolia</i>	2	Australasia	Myrtaceae	153 138
<i>Melaleuca parviflora</i>	N		Myrtaceae	138
<i>Melaleuca squarrosa</i>	1		Myrtaceae	138
<i>Metrosideros</i> 'Mistral' (<i>robusta x excelsa</i>)	Y	Horticultural	Myrtaceae	120 137 142
<i>Metrosideros albiflora</i> (<i>diffusa</i> A. Cunn)	1	Australasia	Myrtaceae	137
<i>Metrosideros angustifolia</i>	N	Australasia	Myrtaceae	120
				120 137 138 142 173
<i>Metrosideros bartlettii</i>	Y	Australasia	Myrtaceae	
<i>Metrosideros carminea</i> (<i>diffusus</i> Hook.)	Y	Australasia	Myrtaceae	120 137 149
<i>Metrosideros carminea</i> 'Ferris Wheel'	N	Horticultural	Myrtaceae	120 149
<i>Metrosideros collina</i> (<i>diffusus</i> (G.Forst)Sm, not I)	N	Australasia	Myrtaceae	120 137
<i>Metrosideros collina</i> 'Spring Fire'	N	Horticultural	Myrtaceae	149
<i>Metrosideros collina</i> var. <i>vitiensis</i>	N	Australasia	Myrtaceae	120
<i>Metrosideros diffusa</i> (Forst. F.) W.R.B. Oliver	Y	Australasia	Myrtaceae	120 142
				120 137 138 139 141 143 144 146 147 148 151 153 155 163 168 169 170 171 173 174
<i>Metrosideros excelsa</i>	Y	Australasia	Myrtaceae	175 178 181 183
<i>Metrosideros excelsa</i> (<i>tomentosa</i>) (orange/yellow)	N	Australasia	Myrtaceae	142 149 153
<i>Metrosideros excelsa</i> (compact form)	N	Australasia	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Fire Mountain'	2	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Flame Crest'	N	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Gold Finger'	1	Horticultural	Myrtaceae	142
<i>Metrosideros excelsa</i> 'Moon Maiden'	Y	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Parnell'	Y	Horticultural	Myrtaceae	120 137 142
<i>Metrosideros excelsa</i> 'Pink Lady'	1	Horticultural	Myrtaceae	120 142
<i>Metrosideros excelsa</i> 'Rangitoto'	2	Horticultural	Myrtaceae	142
<i>Metrosideros excelsa</i> 'Royal Flame'	N	Horticultural	Myrtaceae	120 142
<i>Metrosideros excelsa</i> 'Scarlet Pimpernel'	Y	Horticultural	Myrtaceae	120 137 142 149
<i>Metrosideros excelsa</i> 'Butterscotch'	1	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Fire Stone'	N	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Maori Princess'	N	Horticultural	Myrtaceae	138
<i>Metrosideros excelsa</i> 'Mary'	N	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Springfire'	Y	Horticultural	Myrtaceae	138

<i>Metrosideros excelsa</i> 'Tamaki'	N	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Variegata'	1	Horticultural	Myrtaceae	138 173 183
<i>Metrosideros excelsa</i> 'Vibrance'	Y	Horticultural	Myrtaceae	120
<i>Metrosideros excelsa</i> 'Xmas Cheer'	N	Horticultural	Myrtaceae	120
<i>Metrosideros fulgens</i>	Y	Australasia	Myrtaceae	120 137
<i>Metrosideros fulgens</i> (light orange form)	N	Australasia	Myrtaceae	120
<i>Metrosideros</i> 'Houparapara'	N	Horticultural	Myrtaceae	120
				120 137 138 142 153
<i>Metrosideros kermadecensis</i>	Y	Australasia	Myrtaceae	168 173 178 183
<i>Metrosideros kermadecensis</i> 'Red and Gold'	N	Horticultural	Myrtaceae	142
<i>Metrosideros kermadecensis</i> 'Sunninghill'	N	Horticultural	Myrtaceae	142
<i>Metrosideros kermadecensis</i> 'Variegata'	Y	Horticultural	Myrtaceae	120 138 142
<i>Metrosideros kermadecensis</i> 'Radiant'	N	Horticultural	Myrtaceae	142
<i>Metrosideros</i> 'Maungapiko' (<i>excelsa</i> x <i>kermadecensis</i>)	N	Horticultural	Myrtaceae	120
<i>Metrosideros nervulosa</i>	N	Australasia	Myrtaceae	120 160
<i>Metrosideros parkinsonii</i>	N	Australasia	Myrtaceae	120 138
<i>Metrosideros perforata</i>	Y	Australasia	Myrtaceae	120 137 139
<i>Metrosideros polymorpha</i> 'Tahiti'	N	Australasia	Myrtaceae	138
<i>Metrosideros queenslandica</i>	2	Australasia	Myrtaceae	120
<i>Metrosideros robusta</i>	Y	Australasia	Myrtaceae	120 137 138 173 183
<i>Metrosideros umbellata</i>	Y	Australasia	Myrtaceae	120 137 142 148 178
<i>Metrosideros villosa</i> 'Tahiti'	Y	Australasia	Myrtaceae	120 142
<i>Myrtus communis</i>	Y	Europe	Myrtaceae	155
<i>Psidium cattleianum</i>	Y	South America	Myrtaceae	148
<i>Psidium cattleianum</i> var. <i>littorale</i>		South America	Myrtaceae	138
<i>Psidium guajava</i>	1	South America	Myrtaceae	157 158
<i>Syncarpia glomulifera</i>	1	Australasia	Myrtaceae	153 175 183
<i>Syzygium floribundum</i>	N	Australasia	Myrtaceae	147
<i>Syzygium jambos</i>	N	Asia	Myrtaceae	148 156
<i>Syzygium maire</i>	Y		Myrtaceae	137 169 170
<i>Syzygium oleosum</i>	N		Myrtaceae	147
<i>Syzygium paniculatum</i>	N	Australasia	Myrtaceae	138 146 153
<i>Syzygium ventenatti</i>	N	Australasia	Myrtaceae	183
				138 146 147 148 153
<i>Tristaniopsis laurina</i>	Y	Australasia	Myrtaceae	158 168 173
<i>Waterhousea floribunda</i>	Y	Australasia	Myrtaceae	138 147 174
<i>Pisonia brunoniana</i>	Y	Australasia	Nyctaginaceae	143 157 158
<i>Nyssa sylvatica</i>	Y	North America	Nyssaceae	138 152 153
<i>Fraxinus americana</i>	Y	North America	Oleaceae	120 158 183
<i>Fraxinus angustifolia</i>	Y	North America	Oleaceae	152
				138 147 148 152 157
<i>Fraxinus excelsior</i>	Y	Europe	Oleaceae	158 169 172
<i>Fraxinus excelsior</i> 'Aurea'	Y	Horticultural	Oleaceae	120 138 158 173 183
<i>Fraxinus excelsior</i> 'Jaspidea'	Y	Horticultural	Oleaceae	157
<i>Fraxinus excelsior</i> 'Pendula'	2	Horticultural	Oleaceae	173
<i>Fraxinus griffithii</i> (<i>bracteata</i> Hemsl)	N	Asia	Oleaceae	120
				138 143 155 157 158
<i>Fraxinus ornus</i>	Y	Europe, Asia	Oleaceae	183

<i>Fraxinus oxycarpa (angustifolia)</i>	Y	Europe, Asia, Afr	Oleaceae	138 146 158
				138 143 146 153 157
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Y	Horticultural	Oleaceae	168 173
<i>Fraxinus oxycarpa</i> 'Aurea'	N	Horticultural	Oleaceae	158
<i>Fraxinus pennsylvanica</i>	Y	North America	Oleaceae	138
<i>Fraxinus retusa</i>	N		Oleaceae	120
<i>Fraxinus sieboldiana (mariesii)</i>	N		Oleaceae	120
<i>Fraxinus uhdei</i>	N	North America	Oleaceae	157
<i>Ligustrum japonicum</i>	N	Asia	Oleaceae	168
<i>Ligustrum lucidum</i>	N	Asia	Oleaceae	138 143 153 175
<i>Ligustrum ovalifolium</i>	1	Asia	Oleaceae	138 148
<i>Ligustrum ovalifolium</i> 'Aureum'	Y	Horticultural	Oleaceae	138
<i>Ligustrum sinense</i>	N	Asia	Oleaceae	144
				138 144 147 148 151
				153 157 168 169 171
<i>Olea europaea</i>	N	Europe, Africa	Oleaceae	173 183
<i>Olea europaea</i> 'Africana'	1	Europe, Africa	Oleaceae	143 173
<i>Osmanthus heterophyllus</i>	Y	Asia	Oleaceae	138
<i>Osmanthus heterophyllus</i> 'Variegatus'	Y	Asia	Oleaceae	173
<i>Picconia excelsa</i>	N	Africa	Oleaceae	181
<i>Phyllocladus alpinus</i>	Y	Australasia	Phyllocladaceae	137 173
<i>Phyllocladus aspeniifolius</i>	N	Australasia	Phyllocladaceae	157
<i>Phyllocladus glaucus</i>	1	Australasia	Phyllocladaceae	157 173
				137 138 143 155 157
<i>Phyllocladus trichomanoides</i>	Y	Australasia	Phyllocladaceae	158 170 173 178
<i>Phytolacca dioica</i>	N	South America	Phytolaccaceae	138 148
<i>Abies alba</i>	Y	Europe	Pinaceae	147
<i>Abies concolor</i>	Y	North America	Pinaceae	170
<i>Abies firma</i>	3	Asia	Pinaceae	120
<i>Abies koreana</i>	Y	Asia	Pinaceae	183
<i>Abies pinsapo</i>	Y	Europe	Pinaceae	120 170
				138 146 153 154 169
<i>Cedrus atlantica</i>	Y	Africa	Pinaceae	173 175 183
				138 139 143 148 157
<i>Cedrus atlantica</i> 'Glauca'	Y	Africa	Pinaceae	183
<i>Cedrus atlantica</i> 'Glauca Pendula'	Y	Africa	Pinaceae	172
				138 139 143 146 148
				153 154 157 163 169
<i>Cedrus deodara</i>	Y	Asia	Pinaceae	170 183
<i>Cedrus libani</i>	3	Asia	Pinaceae	120 147 153 169
<i>Cedrus libani</i> 'Sargentii'	Y	Asia	Pinaceae	120
<i>Larix decidua</i>	Y	Europe	Pinaceae	138
<i>Picea abies</i>	Y	Europe	Pinaceae	183
<i>Picea abies</i> 'Humilis'	3	Europe	Pinaceae	120
<i>Picea abies</i> 'Nidiformis'	2	Europe	Pinaceae	120
<i>Picea abies</i> 'Olendorffii'	2	Europe	Pinaceae	120
<i>Picea abies</i> 'Globosa'		Europe	Pinaceae	120
<i>Picea abies</i> 'Gregoryana'	N	Europe	Pinaceae	120
<i>Picea abies</i> 'Procumbens'	1	Europe	Pinaceae	120
<i>Picea asperata</i>	2	Asia	Pinaceae	153
<i>Picea brachytyla</i>	1	Asia	Pinaceae	120

<i>Picea brewerana</i>	1	North America	Pinaceae	148
<i>Picea glauca</i>	2	North America	Pinaceae	120 138
<i>Picea glauca</i> 'Conica Glauca'		North America	Pinaceae	149
<i>Picea omorika</i>	Y	Europe	Pinaceae	120 173
<i>Picea orientalis</i>	Y	Asia	Pinaceae	120 170
<i>Picea pungens</i> 'Moerheimii'	N	North America	Pinaceae	120
<i>Picea pungens</i> 'Koster'	Y	North America	Pinaceae	170
<i>Picea sitchensis</i>	Y	North America	Pinaceae	120 152 170
<i>Picea smithiana</i> (morinda)	3	Asia	Pinaceae	120 139 147
<i>Pinus aristata</i>	Y	North America	Pinaceae	120
<i>Pinus armandii</i>	Y	Asia	Pinaceae	120
<i>Pinus bungeana</i>	Y	Asia	Pinaceae	120
				120 147 148 153 154
<i>Pinus canariensis</i>	Y	Europe	Pinaceae	183
<i>Pinus chiapensis</i> (strobilus chiapensis)	1	North America	Pinaceae	120
<i>Pinus coulteri</i>	Y	North America	Pinaceae	120 170
<i>Pinus culminicola</i>	1	North America	Pinaceae	120
<i>Pinus densiflora</i>	1	Asia	Pinaceae	143 152
<i>Pinus edulis</i> (cembroides var. edulis)	2	North America	Pinaceae	120
<i>Pinus elliotii</i>	1	North America	Pinaceae	153 170
<i>Pinus halepensis</i>	2	Europe, Asia	Pinaceae	120 152
<i>Pinus maximartinezii</i>	1	North America	Pinaceae	120
<i>Pinus montezumae</i>	2	North America	Pinaceae	120
<i>Pinus monticola</i>	2	North America	Pinaceae	120
<i>Pinus mugo</i> (montana)	N	Europe	Pinaceae	120 158 173
<i>Pinus mugo</i> 'Gnom'	2	Europe	Pinaceae	149
<i>Pinus mugo</i> 'Mops'	1	Europe	Pinaceae	120
<i>Pinus mugo</i> var. pumilo	3	Europe	Pinaceae	120
<i>Pinus muricata</i>	1	North America	Pinaceae	120 152
<i>Pinus nigra</i>	Y	Europe	Pinaceae	173 178
<i>Pinus nigra</i> 'Pyramidalis'		Europe	Pinaceae	120
<i>Pinus palustris</i>	2	North America	Pinaceae	120 170
<i>Pinus parviflora</i>	2	Asia	Pinaceae	148
				120 138 143 152 153
<i>Pinus patula</i>	Y	North America	Pinaceae	154 157 158 170
<i>Pinus patula</i> (topped)		North America	Pinaceae	138
<i>Pinus peuce</i>	Y	Europe	Pinaceae	152
				141 146 149 155 157
<i>Pinus pinaster</i>	Y	Europe	Pinaceae	158 163 170 183
<i>Pinus pinceana</i>	1	North America	Pinaceae	120
				138 147 152 153 157
<i>Pinus pinea</i>	Y	Europe	Pinaceae	160 170 183
<i>Pinus ponderosa</i>	2	North America	Pinaceae	120 138 158 170
<i>Pinus pumila</i>	1	Asia	Pinaceae	120
				138 141 143 144 146
				147 148 151 152 153
				154 155 157 158 163
<i>Pinus radiata</i>	Y	North America	Pinaceae	168 170 174 183
<i>Pinus radiata</i> 'Aurea'	2	North America	Pinaceae	120

<i>Pinus roxburgii</i>	Y	Asia	Pinaceae	120 153
<i>Pinus strobiformis</i>	2	North America	Pinaceae	120
<i>Pinus sylvestris</i>	Y	Europe	Pinaceae	120
<i>Pinus tabuliformis (sinensis)</i>	3	Asia	Pinaceae	120
<i>Pinus taeda</i>	1	North America	Pinaceae	152 153
<i>Pinus thunbergii</i>	Y	Asia	Pinaceae	120 152 153
<i>Pinus torreyana</i>	1	North America	Pinaceae	120
<i>Pinus wallichiana (griffithii)</i>	Y	Asia	Pinaceae	120
<i>Pseudolarix amabilis</i>	3	Asia	Pinaceae	170
<i>Pseudotsuga menzeisii</i>	Y	North America	Pinaceae	138 157
<i>Macropiper excelsum</i>	Y	Australasia	Piperaceae	138 157 173
<i>Hymenosporum flavum</i>	Y	Australasia	Pittosporaceae	138 158 174 183
<i>Pittosporum bracteolatum</i>	N		Pittosporaceae	153
				138 143 148 155 157
<i>Pittosporum crassifolium</i>	Y	Australasia	Pittosporaceae	158 168 173
<i>Pittosporum crassifolium 'Variegatum'</i>	Y	Australasia	Pittosporaceae	158
				138 152 155 157 158
<i>Pittosporum eugenioides</i>	Y	Australasia	Pittosporaceae	168 173
<i>Pittosporum huttonianum</i>	1		Pittosporaceae	158
<i>Pittosporum obcordatum</i>	1	Australasia	Pittosporaceae	153
				138 143 155 157 158
<i>Pittosporum tenuifolium</i>	Y	Australasia	Pittosporaceae	173
<i>Pittosporum tenuifolium 'Variegatum'</i>	Y	Australasia	Pittosporaceae	138 158
<i>Pittosporum umbellatum</i>	2	Australasia	Pittosporaceae	138 143 157
<i>Platanus mexicana</i>	N	North America	Platanaceae	120
<i>Platanus occidentalis</i>	1	North America	Platanaceae	143 172
<i>Platanus occidentalis 'Insularis'</i>	N	North America	Platanaceae	173
<i>Platanus orientalis</i>	Y	Asia	Platanaceae	138 158 183
				138 143 144 146 147
<i>Platanus x acerifolia (orientalis x occidentalis)</i>	Y	North America, E	Platanaceae	148 151 152 157 168 169 172 173 175 183
				137 138 141 143 147
<i>Dacrycarpus dacrydioides</i>	Y	Australasia	Podocarpaceae	153 155 157 158 169 170 173 178 183
				137 138 141 143 146
<i>Dacrydium cupressinum</i>	Y	Australasia	Podocarpaceae	153 155 157 158 169 170 173 174 178 183
<i>Dacrydium excelsus</i>	N	Australasia	Podocarpaceae	173
<i>Podocarpus acutifolius</i>	Y	Australasia	Podocarpaceae	137 142 157 173
<i>Podocarpus alpinus (lawrencii)</i>	3	Australasia	Podocarpaceae	120
<i>Podocarpus cunninghamii</i>	N	Australasia	Podocarpaceae	157
<i>Podocarpus elatus</i>	3	Australasia	Podocarpaceae	148 153 181 183
<i>Podocarpus elongatus</i>	N		Podocarpaceae	120
<i>Podocarpus falcatus</i>	N	Africa	Podocarpaceae	120
<i>Podocarpus ferrugineus</i>	Y	Australasia	Podocarpaceae	137 141 142
<i>Podocarpus gracilior</i>	Y		Podocarpaceae	138 158 173
				120 137 139 141 142
<i>Podocarpus hallii</i>	Y	Australasia	Podocarpaceae	155 170 171
<i>Podocarpus henkellii</i>	3	Africa	Podocarpaceae	120 138 153

<i>Podocarpus latifolius</i>	2	Africa	Podocarpaceae	120
<i>Podocarpus lawrencei</i> see <i>P.alpinus</i>	Y	Australasia	Podocarpaceae	120
<i>Podocarpus macrophyllus</i>	Y	Asia	Podocarpaceae	120 138 173
<i>Podocarpus macrophyllus</i> 'Augustifolius'	N	Horticultural	Podocarpaceae	138
<i>Podocarpus macrophyllus</i> 'Maki'	2	Asia	Podocarpaceae	120 138 149
<i>Podocarpus nivalis</i>	Y	Australasia	Podocarpaceae	120 137 142
<i>Podocarpus nivalis</i> 'Bronze'	3	Australasia	Podocarpaceae	120
<i>Podocarpus nivalis</i> 'Jacks Pass'	1	Australasia	Podocarpaceae	120
<i>Podocarpus salignus</i> (<i>chilinus</i>)	2	South America	Podocarpaceae	120
<i>Podocarpus spicatus</i>	Y	Australasia	Podocarpaceae	137 142
				120 137 138 139 142 143 144 146 147 148 149 151 152 153 155 157 158 169 170 172 173 174 175 176 178
<i>Podocarpus totara</i>	Y	Australasia	Podocarpaceae	181 183
				120 137 138 142 143 149 158 168 169 171
<i>Podocarpus totara</i> 'Aurea'	Y	Horticultural	Podocarpaceae	173
<i>Podocarpus totara</i> 'Pendula'	Y	Horticultural	Podocarpaceae	120 137 142
<i>Podocarpus totara</i> 'Albany Gold'	2	Horticultural	Podocarpaceae	120
<i>Prumnopitys ferruginea</i>	Y	Australasia	Podocarpaceae	138 157 173
<i>Prumnopitys taxifolia</i>	Y	Australasia	Podocarpaceae	138 157 170 173
<i>Polygala myrtifolia</i>	N	Africa	Polygalaceae	138 158
<i>Banksia collina</i>	N	Australasia	Proteaceae	158
<i>Banksia ericifolia</i>	Y	Australasia	Proteaceae	158
<i>Banksia integrifolia</i>	Y	Australasia	Proteaceae	138 146 158 173
<i>Banksia serrata</i>	2	Australasia	Proteaceae	138
<i>Grevillea asplenifolia</i>	N	Australasia	Proteaceae	158
<i>Grevillea banksii</i>	N	Australasia	Proteaceae	138
<i>Grevillea hilliana</i>	N	Australasia	Proteaceae	175
<i>Grevillea jenkinsii</i>	N	Australasia	Proteaceae	158
				138 143 144 147 148 151 152 153 154 157 158 168 169 171 173
<i>Grevillea robusta</i>	Y	Australasia	Proteaceae	175 183
<i>Hakea laurina</i>	Y	Australasia	Proteaceae	158
<i>Hakea suaveolens</i>	N	Australasia	Proteaceae	153
				137 138 141 143 155 157 158 168 169 170
<i>Knightia excelsa</i>	Y	Australasia	Proteaceae	173 183
<i>Macadamia integrifolia</i>	N	Australasia	Proteaceae	169 175 181
<i>Macadamia tetraphylla</i>	1	Australasia	Proteaceae	143 153 173
<i>Persoonia toru</i>	N	Australasia	Proteaceae	158
<i>Stenocarpus salignus</i>	N	Australasia	Proteaceae	148
				138 148 153 157 158 173 183
<i>Stenocarpus sinuatus</i>	Y	Australasia	Proteaceae	173 183
<i>Hovenia dulcis</i>	Y	Asia	Rhamnaceae	157
<i>Pomaderris apetala</i>	Y	Australasia	Rhamnaceae	143 157
<i>Pomaderris kumeraho</i>	Y	Australasia	Rhamnaceae	158 168

<i>Rhamnus alaternus</i>	N	Europe	Rhamnaceae	158
<i>Amelanchier canadensis</i>	Y	North America	Rosaceae	173
<i>Amelanchier lamarckii</i>	Y	North America	Rosaceae	173
<i>Crataegus monogyna</i>	N	Europe, Africa	Rosaceae	120 143 144 151 157
<i>Eriobotrya japonica</i>	2	Asia	Rosaceae	138 148 158 170 173
<i>Malus</i> 'Crimson Brilliant'	2	Horticultural	Rosaceae	120
<i>Malus</i> 'Golden Hornett'	Y	Horticultural	Rosaceae	120 173
<i>Malus</i> 'Jack Humm'	Y	Horticultural	Rosaceae	120 142
<i>Malus</i> 'Strathmore'	3	Horticultural	Rosaceae	120
<i>Malus</i> 'Van Eseltine'	Y	Horticultural	Rosaceae	120
<i>Malus</i> 'Wrights Scarlet'	Y	Horticultural	Rosaceae	120
<i>Malus</i> 'Charlotte'	N	Horticultural	Rosaceae	120
<i>Malus domestica</i> (<i>pumila</i>)	N	Europe	Rosaceae	146 173
<i>Malus florentina</i>	N	Europe	Rosaceae	120
<i>Malus floribunda</i>	Y	Asia	Rosaceae	120
<i>Malus hupehensis</i>	2	Asia	Rosaceae	120
<i>Malus ioensis</i> 'Plena'	Y	Horticultural	Rosaceae	120
<i>Malus</i> 'Jelly King'	Y	Horticultural	Rosaceae	120
<i>Malus</i> 'Red Delicious'	3	Horticultural	Rosaceae	120
<i>Malus sieboldii</i> 'Gorgeous'	Y	Horticultural	Rosaceae	120
<i>Malus toringoides</i>	1	Asia	Rosaceae	120
<i>Malus trilobata</i>	Y	Asia	Rosaceae	120
<i>Malus tschonoski</i>	Y	Asia	Rosaceae	120
<i>Malus x arnoldiana</i> (<i>floribunda x baccata</i>)	N		Rosaceae	120
<i>Malus x purpurea</i> 'Eleyi'	N	Horticultural	Rosaceae	120
<i>Malus x robusta</i> (<i>baccata x prunifolia</i>)	Y		Rosaceae	120
<i>Malus yunnanensis</i>	2		Rosaceae	120
<i>Photinia x fraseri</i>	N	Asia	Rosaceae	138 157
<i>Photinia x fraseri</i> 'Red Robin'	Y	Horticultural	Rosaceae	138
				138 144 147 148 153
<i>Photinia serrulata</i>	1	Asia	Rosaceae	157 173 174 183
<i>Photinia x fraseri</i> 'Robusta'	Y	Horticultural	Rosaceae	158
<i>Prunus</i> 'Accolade' (<i>sargentii x subhirtella</i>)	Y	Horticultural	Rosaceae	120 158
<i>Prunus</i> 'Pandora' (<i>subhirtella x yedoensis</i>)	N	Horticultural	Rosaceae	120
<i>Prunus</i> 'Pearly Shadows'	3	Horticultural	Rosaceae	120
<i>Prunus</i> 'Seaview Beauty'	2	Horticultural	Rosaceae	120
<i>Prunus amygdalo-persica</i>		Horticultural	Rosaceae	138 158
<i>Prunus armeniaca</i>		Asia	Rosaceae	138 158
<i>Prunus avium</i>	Y	Europe	Rosaceae	120
<i>Prunus avium</i> 'Pendula'	2	Europe	Rosaceae	149
<i>Prunus avium</i> 'Plena'	N	Europe	Rosaceae	120
				120 138 149 158 168
<i>Prunus campanulata</i>	Y	Asia	Rosaceae	170 173
<i>Prunus campanulata</i> (Formosan Cherry)		Asia	Rosaceae	158
<i>Prunus campanulata</i> 'Felix Jury'	Y	Asia	Rosaceae	120
<i>Prunus campanulata</i> 'Red Veil'	2	Asia	Rosaceae	120
<i>Prunus campanulata</i> 'Superba'	Y	Asia	Rosaceae	120 173
<i>Prunus caroliniana</i>	N	Asia	Rosaceae	120
<i>Prunus cerasifera</i>	N	Asia	Rosaceae	138 155 157

<i>Prunus cerasifera</i> 'Elvins'	Y	Asia	Rosaceae	120
<i>Prunus cerasifera</i> 'Nigra'	Y	Asia	Rosaceae	138 143 157 158 173
<i>Prunus cerasifera</i> 'Rosea'	N	Asia	Rosaceae	138
<i>Prunus cerasifera</i> 'Thundercloud'	Y	Americas	Rosaceae	173
<i>Prunus cerasoides</i>	1	Asia	Rosaceae	120
<i>Prunus cerasus</i> 'Rhexii'	Y	Asia	Rosaceae	120
<i>Prunus conradinae</i>	N	Asia	Rosaceae	120
<i>Prunus dulcis</i>		Europe	Rosaceae	138
<i>Prunus laurocerasus</i>	Y	Europe, Asia	Rosaceae	138 139 147 148 157 158 174
<i>Prunus lusitanica</i>	Y	Europe	Rosaceae	120 138 158
<i>Prunus maackii</i>	2	Asia	Rosaceae	120
<i>Prunus mume</i> 'The Geisha'	Y	Horticultural	Rosaceae	120
<i>Prunus negundo</i> 'Variegatum'	N	Horticultural	Rosaceae	173
<i>Prunus nigra</i>			Rosaceae	138
<i>Prunus nipponica</i>	2	Asia	Rosaceae	120 138
<i>Prunus persica</i>		Asia	Rosaceae	138 158 174
<i>Prunus persica</i> 'Pink Cloud'		Horticultural	Rosaceae	120
<i>Prunus persica</i> 'Windle Weeping'		Horticultural	Rosaceae	138
<i>Prunus saligna</i>			Rosaceae	174
<i>Prunus sargentii</i>	Y	Asia	Rosaceae	120
<i>Prunus serrulata</i>	Y	Asia	Rosaceae	138 146 155 157 173 183
<i>Prunus serrulata</i> 'Kiku zakura' (<i>serrulata</i> f. <i>chrysanthemoides</i>)	Y	Horticultural	Rosaceae	120
<i>Prunus serrulata</i> 'Shirofugen'	3	Horticultural	Rosaceae	120 174
<i>Prunus serrulata</i> 'Ukon' ('Yukon')	Y	Horticultural	Rosaceae	120
<i>Prunus serrulata</i> 'Kanzan'	Y	Horticultural	Rosaceae	120 138
<i>Prunus serrulata</i> 'Shimidsu Sakura'	Y	Horticultural	Rosaceae	138 143 173
<i>Prunus serrulata</i> 'Shirotae'	Y	Horticultural	Rosaceae	120 138 139
<i>Prunus serrulata</i> 'Pink Perfection'	Y	Horticultural	Rosaceae	138
<i>Prunus subhirtella</i>	3	Asia	Rosaceae	138 158
<i>Prunus subhirtella</i> 'Falling Snow'	Y	Horticultural	Rosaceae	120
<i>Prunus subhirtella</i> 'Autumnalis Rosea'	Y	Horticultural	Rosaceae	138
<i>Prunus triloba</i>	N	Asia	Rosaceae	120 138
<i>Prunus x blireana</i> (<i>cerasifera</i> 'Atropurpurea' x <i>m</i>)	N	Asia	Rosaceae	120
<i>Prunus x domestica</i>	N	Europe	Rosaceae	146
<i>Prunus x incam</i> 'Okame'	Y	Horticultural	Rosaceae	120
<i>Prunus x juddii</i> (<i>sargentii</i> x <i>yedoensis</i>)	N		Rosaceae	120
<i>Prunus x yedoensis</i> (<i>yoshino</i>)	Y	Asia	Rosaceae	120 158
<i>Prunus x yedoensis</i> 'Awanui'	Y	Horticultural	Rosaceae	120 138 157
<i>Prunus x yedoensis</i> 'Ivensii'	2	Horticultural	Rosaceae	120
<i>Pyrus communis</i>	2	Europe, Asia	Rosaceae	139 158
<i>Pyrus salicifolia</i>	N	Asia	Rosaceae	138
<i>Pyrus salicifolia</i> 'Pendula'	Y	Horticultural	Rosaceae	120 138
<i>Pyrus ussurensis</i>	1	Asia	Rosaceae	120
<i>Raphiolepis indica</i>	N	Asia	Rosaceae	158
<i>Raphiolepis umbellata</i>	N	Asia	Rosaceae	158
<i>Sorbus</i> 'Joseph Rock'	Y	Horticultural	Rosaceae	120
<i>Sorbus decora</i>	3	North America	Rosaceae	120
<i>Sorbus hupehensis</i>	Y	Asia	Rosaceae	120

<i>Alberta magna</i>	3	Africa	Rubiaceae	138 153 157
<i>Calodendrum capense</i>	1	Africa	Rutaceae	148
<i>Casimiroa edulis</i>	2	Africa	Rutaceae	156 169 173
<i>Citrus limon</i>	N	Asia	Rutaceae	138 148 157
<i>Melicope ternata</i>	Y	Asia, Australasia	Rutaceae	143
<i>Phebalium squameum</i>	Y	Australasia	Rutaceae	138
<i>Phebalium squameum</i> 'Illumination'	Y	Horticultural	Rutaceae	138
<i>Rothmannia globosa</i>	N	Africa	Rutaceae	153
<i>Populus</i> 'Kawa' (<i>yunnanensis</i> hyd)	Y	Horticultural	Salicaceae	120
<i>Populus</i> 'Tasman'	Y	Horticultural	Salicaceae	120
<i>Populus alba</i>	N	Europe, Africa, A	Salicaceae	138 155
<i>Populus alba</i> 'Pyramidalis' (P. 'Bolleana')	1	Horticultural	Salicaceae	153
				143 144 147 151 153
<i>Populus deltoides</i> (<i>monolifera</i>)	N	USA, Europe, Afri	Salicaceae	157 183
<i>Populus lasiocarpa</i>	N	Asia	Salicaceae	152
<i>Populus</i> 'Manawatu Gold'	Y	Horticultural	Salicaceae	120
<i>Populus nigra</i>	N	Africa, Europe	Salicaceae	138 154 155
				138 143 144 146 148
				151 152 157 158 169
<i>Populus nigra</i> 'Italica'	1	Africa, Europe	Salicaceae	183
<i>Populus nigra</i> x <i>P. deltoides</i> hybrid	N	Horticultural	Salicaceae	152
<i>Populus simonii</i>	N	Asia	Salicaceae	120
<i>Populus szechuanica</i>	N	Asia	Salicaceae	120
<i>Populus</i> 'Toa'	Y	Horticultural	Salicaceae	120
<i>Populus tremula</i>	1	Europe, Africa, A	Salicaceae	170
<i>Populus trichocarpa</i>	2	North America	Salicaceae	138 152 169
<i>Populus x canadensis</i> (<i>deltoides</i> x <i>nigra</i>)	N	North America	Salicaceae	154 183
				120 138 143 146 152
				153 154 155 157 170
<i>Populus yunnanensis</i>	Y	Asia	Salicaceae	183
<i>Salix alba</i>	1	Europe, Africa, A	Salicaceae	153
				144 146 154 157 158
<i>Salix babylonica</i>	Y	Asia	Salicaceae	169
<i>Salix caprea</i>	2	Asia	Salicaceae	138 158
<i>Salix chilensis</i>	N	South America	Salicaceae	138 146
<i>Salix cinerea</i>	N	Europe, Asia	Salicaceae	155
<i>Salix fragilis</i>	N	Europe, Asia	Salicaceae	138 152 158
<i>Salix humboldtiana</i>	N	South America	Salicaceae	138 158
<i>Salix matsudana</i>	2	Asia	Salicaceae	138
				138 146 152 154 158
<i>Salix matsudana</i> 'Tortuosa'	Y	Horticultural	Salicaceae	168
<i>Salix purpurea</i> 'Nana'	1	Horticultural	Salicaceae	155
<i>Salix x reichardtii</i>	N		Salicaceae	155
<i>Salix x chrysocoma</i>	Y		Salicaceae	143 153 157
<i>Salix x sepulcralis</i>	Y		Salicaceae	138 152
				137 138 143 144 147
				148 153 157 158 163
				169 170 172 173 174
<i>Alectryon excelsus</i>	Y	Australasia	Sapindaceae	178 181 183
<i>Alectryon grandis</i>	1	Australasia	Sapindaceae	137 173
<i>Cupaniopsis anacardioides</i>	1	Australasia	Sapindaceae	153

<i>Diploglottis australis</i>	N		Sapindaceae	173
<i>Dodonaea viscosa</i>	Y	Australasia	Sapindaceae	138 158 173
<i>Dodonaea viscosa</i> 'Purpurea'	Y	Australasia	Sapindaceae	138
<i>Koelreuteria paniculata</i>	Y	Asia	Sapindaceae	157 158 173
<i>Planchonella costata</i>	Y	Australasia	Sapindaceae	153 169
<i>Pouteria costata</i>	1	North America	Sapotaceae	143
<i>Ailanthus altissima</i>	Y	Asia	Simaroubaceae	138 148 157 173 183
<i>Brugmansia sanguinea</i>		South America	Solanaceae	153
<i>Iochroma grandiflorum</i>	N	South America	Solanaceae	153
<i>Solanum aviculare</i>	3	Australasia	Solanaceae	157
<i>Brachychiton acerifolius</i>	Y	Australasia	Sterculiaceae	138 143 153 170 173
<i>Brachychiton discolor</i>	N	Australasia	Sterculiaceae	153 154 156
<i>Brachychiton populneus</i>	1	Australasia	Sterculiaceae	138 143 153 173
<i>Brachychiton rupstris</i>	N	Australasia	Sterculiaceae	153
<i>Cheirostemon platanoides</i>	N	North America	Sterculiaceae	148 154
<i>Strelitzia alba</i>	N		Sterculiaceae	148
<i>Strelitzia nicholai</i>	Y	Africa	Strelitziaceae	148 153 157
<i>Strelitzia reginae</i>	Y	Africa	Strelitziaceae	138
<i>Tamarix juniperina</i>	3	Asia	Tamaricaceae	173
<i>Taxus baccata</i>	Y	Europe	Taxaceae	183
<i>Taxus baccata</i> 'Fastigiata'	Y	Europe	Taxaceae	143 148 157 173 183
				138 139 143 144 151 152 153 155 157 163 167 169 170 173 175
<i>Cryptomeria japonica</i>	Y	Asia	Taxodiaceae	176 183
<i>Cryptomeria japonica</i> 'Cristata'	3	Asia	Taxodiaceae	120
<i>Cryptomeria japonica</i> 'Elegans Nana'	Y	Asia	Taxodiaceae	120
<i>Cryptomeria japonica</i> 'Elegans'	Y	Asia	Taxodiaceae	138 143 153 157
<i>Cryptomeria japonica</i> 'Jindai Sugi'	3	Asia	Taxodiaceae	120
<i>Cryptomeria japonica</i> 'Monstrosa'	1	Asia	Taxodiaceae	120
<i>Cryptomeria japonica</i> 'Spiralis'	2	Asia	Taxodiaceae	120
<i>Cryptomeria japonica</i> 'Vilmoriniana'	Y	Asia	Taxodiaceae	120
<i>Cryptomeria japonica</i> 'Globosa Nana'	Y	Asia	Taxodiaceae	149
<i>Cunninghamia konishii</i>	3	Asia	Taxodiaceae	120
<i>Cunninghamia lanceolata</i>	Y	Asia	Taxodiaceae	120 144 151 170
<i>Glyptostrobus lineatus</i> (pensilis)	Y	Asia	Taxodiaceae	120 173
<i>Metasequoia glyptostroboides</i>	Y	Asia	Taxodiaceae	120 139 149 153 154 170 173 183
<i>Metasequoia glyptostroboides</i> 'Sheridan Spire'	Y	Asia	Taxodiaceae	120
<i>Sciadopitys verticillata</i>	Y	Asia	Taxodiaceae	120 149 153 158 173
				138 143 144 147 148 152 153 157 158 163 169 173 176 178 183
<i>Sequoia sempervirens</i>	Y	North America	Taxodiaceae	169 173 176 178 183
<i>Sequoia sempervirens</i> 'Adpressa' ('Albospica')	3	North America	Taxodiaceae	120

<i>Sequoiadendron giganteum</i>	Y	North America	Taxodiaceae	120 148 152 153 157 170 171 173 183
<i>Taxodium ascendens</i>	Y	North America	Taxodiaceae	120
<i>Taxodium distichum</i>	Y	North America	Taxodiaceae	138 142 149 152 153 154 155 158 163 168 169 173 183
<i>Taxodium mucronatum</i>	Y	North America	Taxodiaceae	120 170 175
<i>Entelea arborescens</i>	Y	Australasia	Tiliaceae	138 148 157 158 168 173
<i>Tilia cordata</i>	Y	Europe	Tiliaceae	120 157
<i>Tilia mongolica</i>	1	Asia	Tiliaceae	120
<i>Tilia platyphyllos</i>	Y	Europe	Tiliaceae	138
<i>Tilia tomentosa</i>	Y	Europe	Tiliaceae	120
<i>Tilia x euchlora</i>	N		Tiliaceae	147
<i>Tilia x europaea</i>	Y	Europe	Tiliaceae	138 144 148 153 158 172 183
<i>Celtis africana</i>	2	Africa	Ulmaceae	120
<i>Celtis australis</i>	N	Europe, Africa, Asia	Ulmaceae	143 175 183
<i>Celtis occidentalis</i>	Y	North America	Ulmaceae	138 153 157
<i>Celtis sinensis</i>	N	Asia	Ulmaceae	120 153
<i>Ulmus americana</i>	N	Europe	Ulmaceae	183
<i>Ulmus carpinifolia</i>	N	Europe	Ulmaceae	138 168
<i>Ulmus carpinifolia</i> 'Variegata'	Y	Horticultural	Ulmaceae	138
<i>Ulmus glabra</i>	1	Europe	Ulmaceae	138 147 153 158 183
<i>Ulmus glabra</i> var. <i>aurea</i>	N	Horticultural	Ulmaceae	176
<i>Ulmus glabra</i> 'Camperdown'	1	Horticultural	Ulmaceae	148 173 183
<i>Ulmus glabra</i> 'Lutescens'	Y	Horticultural	Ulmaceae	138
<i>Ulmus glabra</i> 'Pendula'	Y	Horticultural	Ulmaceae	138 146 148
<i>Ulmus</i> 'Lobel'		Horticultural	Ulmaceae	138
<i>Ulmus parvifolia</i>	Y	Asia	Ulmaceae	138 153 157 158
<i>Ulmus pendula</i>	N		Ulmaceae	169
<i>Ulmus procera</i>	1	Europe	Ulmaceae	138 144 147 148 152 157 168 173 174 183
<i>Ulmus procera</i> 'Louis van Houtte'	Y	Horticultural	Ulmaceae	138 158 170 173 174
<i>Ulmus pumila</i>		Asia	Ulmaceae	138 152
<i>Ulmus thomasii</i>	N		Ulmaceae	172
<i>Ulmus vulgaris</i>	N		Ulmaceae	138
<i>Ulmus x hollandica</i> (<i>carpinifolia</i> x <i>glabra</i>)	1		Ulmaceae	148 183
<i>Zelkova serrata</i>	Y	Asia	Ulmaceae	138 153 156 170 173

				137 138 139 141 143 144 146 147 148 151 152 153 157 158 163 168 169 170 171 172 173 174 175 176 178
<i>Vitex lucens</i>	Y	Australasia	Verbenaceae	181 183
<i>Meliccytus rhamiflorus</i>	Y	Australasia	Violaceae	143 173
<i>Drimys winteri</i>	Y	South America	Winteraceae	170 173
Anomalies:				
<i>Acer biloba</i>	N		Aceraceae	173
<i>Rhopalostylis spectabile</i>	N		Aracaceae	173
<i>Ginkgo tawa</i>	N		Ginkgoaceae	173
<i>Teucrium fruticans</i>	Y	Europe	Lamiaceae	158
<i>Westringia fruticosa</i>	Y	Australasia	Lamiaceae	158
<i>Dysoxylum robusta</i>	N		Meliaceae	173
<i>Metrosideros cupressinum</i>	N		Myrtaceae	173
<i>Platanus cyperus</i>	N		Platanaceae	158
<i>Escallonia bifida</i>	1	South America	Saxifragaceae	151
<i>Cryptomeria cunninghamiana</i>	N		Taxodiaceae	138
<i>Sequoiadendron sempervirens</i>	N		Taxodiaceae	173
<i>Lepidozamia peroffskyana</i>	2	Australasia	Zamiaceae	161
<i>Macrozamia communis</i>	3	Australasia	Zamiaceae	173
<i>Macrozamia johnsonia</i>	1	Australasia	Zamiaceae	161

Appendix 7: Full Species Data List

Botanic Name	Country of origin	Continent	Family	Location	Age	Source	No.
<i>Acer buergerianum</i>	China	Asia	Aceraceae	ARBG	1991	Caves Tree Nurser	1
<i>Acer buergerianum</i>	China	Asia	Aceraceae	ARBG	1976		1
<i>Acer buergerianum</i>	China	Asia	Aceraceae	SPRINGS			1
<i>Acer buergerianum</i>	China	Asia	Aceraceae	DOMAIN			1
<i>Acer campbellii</i>	Himalaya	Asia	Aceraceae	ARBG	1996	Caves Tree Nurser	1
<i>Acer campbellii</i> spp. <i>wilsonii</i>	China	Asia	Aceraceae	ARBG	1993	Dene's Garden Way	1
<i>Acer campestre</i>	Europe, Asia minor	Europe & Asia	Aceraceae	MANUKAU			2
<i>Acer capillipes</i>	Japan	Asia	Aceraceae	ARBG	1992	Joy Plants	1
<i>Acer capillipes</i>	Japan	Asia	Aceraceae	MANUKAU			1
<i>Acer capillipes</i>	Japan	Asia	Aceraceae	ARBG	1993	Chiltern Seeds	1
<i>Acer carpiniifolium</i>	Japan	Asia	Aceraceae	ARBG	1992	Caves Tree Nurser	1
<i>Acer caudatifolium</i> (<i>kawakamii</i> , <i>morrisonense</i>)	Taiwan	Asia	Aceraceae	ARBG	1993	Dene's Garden Way	1
<i>Acer caudatifolium</i>	Taiwan	Asia	Aceraceae	ARBG	1993	Chilton seeds	1
<i>Acer caudatifolium</i>	Taiwan	Asia	Aceraceae	UNI			1
<i>Acer crataegifolium</i>	Japan	Asia	Aceraceae	ARBG	1997	Top Trees Nursery	1
<i>Acer davidii</i>	China	Asia	Aceraceae	ARBG	1991	Chiltern Seeds	1
<i>Acer griseum</i> (<i>nikoense</i> var. <i>griseum</i>)	China	Asia	Aceraceae	ARBG	1993	Dene's Garden Way	1
<i>Acer griseum</i>	China	Asia	Aceraceae	EDEN	1998	Caves Tree Nurser	2
<i>Acer hookeri</i>	Himalaya	Asia	Aceraceae	UNI			1
<i>Acer japonicum</i>	Japan	Asia	Aceraceae	EDEN			2
<i>Acer japonicum</i> 'Green Cascade'	Horticultural	Horticultural	Aceraceae	EDEN	1996	Duncan & Davies	2
<i>Acer miyabei</i>	Japan	Asia	Aceraceae	ARBG	1997	Caves Tree Nurser	2
<i>Acer negundo</i>	USA	North America	Aceraceae	ARBG	1978	Duncan & Davies	1
<i>Acer negundo</i>	USA	North America	Aceraceae	EDEN	1974		1
<i>Acer negundo</i>	USA	North America	Aceraceae	DOMAIN			1
<i>Acer negundo</i>	USA	North America	Aceraceae	SPRINGS			1
<i>Acer negundo</i>	USA	North America	Aceraceae	MANUKAU			574
<i>Acer negundo</i>	USA	North America	Aceraceae	ALBERON			1
<i>Acer negundo</i>	USA	North America	Aceraceae	CENTENNIAL			1
<i>Acer negundo</i>	USA	North America	Aceraceae	CORNWALL			26
<i>Acer negundo</i>	USA	North America	Aceraceae	WINNI			1

<i>Acer negundo</i>	USA	North America	Aceraceae	UNI			3
<i>Acer negundo</i> 'Kelly's Gold'	Horticultural	Horticultural	Aceraceae	UNI			1
<i>Acer negundo</i> 'Variegata'	Horticultural	Horticultural	Aceraceae	MANUKAU			26
<i>Acer oliverianum</i>	China	Asia	Aceraceae	ARBG	1997	Top Trees Nursery	1
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	UNITEC	Semi M		1
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	EDEN			1
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	DOMAIN			1
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	ALBERTON			1
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	MANUKAU			47
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	STREET			31
<i>Acer palmatum</i> (<i>polymorphum</i>)	Japan	Asia	Aceraceae	UNI			4
<i>Acer palmatum</i> 'Atropurpureum'	Horticultural	Horticultural	Aceraceae	EDEN	1993		1
<i>Acer palmatum</i> 'Atropurpureum'	Horticultural	Horticultural	Aceraceae	STREET			1
<i>Acer palmatum</i> 'Beni Komachi'	Horticultural	Horticultural	Aceraceae	EDEN	1994		1
<i>Acer palmatum</i> 'Bloodgood'	Horticultural	Horticultural	Aceraceae	STREET			1
<i>Acer palmatum</i> 'Chishio'	Horticultural	Horticultural	Aceraceae	EDEN	1994		1
<i>Acer palmatum</i> 'Dissectum Atropurpureum'	Horticultural	Horticultural	Aceraceae	EDEN	1980		1
<i>Acer palmatum</i> 'Dissectum Crimson Queen'	Horticultural	Horticultural	Aceraceae	EDEN	1997		1
<i>Acer palmatum</i> 'Dissectum Palmatifidum'	Horticultural	Horticultural	Aceraceae	EDEN	1997		1
<i>Acer palmatum</i> 'Dissectum Red Dragon'	Horticultural	Horticultural	Aceraceae	EDEN	1998	Duncan & Davies	1
<i>Acer palmatum</i> 'Dissectum Viridis'	Horticultural	Horticultural	Aceraceae	EDEN	1991		1
<i>Acer palmatum</i> 'Dissectum'	Horticultural	Horticultural	Aceraceae	EDEN	1976		1
<i>Acer palmatum</i> 'Hagoromo'	Horticultural	Horticultural	Aceraceae	ARBG	1993	Caves Tree Nurser	1
<i>Acer palmatum</i> 'Katsura'	Horticultural	Horticultural	Aceraceae	ARBG	1994	Duncan & Davies	1
<i>Acer palmatum</i> 'O'Kagami'	Horticultural	Horticultural	Aceraceae	EDEN	1989		1
<i>Acer palmatum</i> 'Omurayama'	Horticultural	Horticultural	Aceraceae	ARBG	1994	Duncan & Davies	1
<i>Acer palmatum</i> 'Omurayama'	Horticultural	Horticultural	Aceraceae	EDEN	1993		1
<i>Acer palmatum</i> 'Osakasuki'	Horticultural	Horticultural	Aceraceae	ARBG	1994	Duncan & Davies	1
<i>Acer palmatum</i> 'Roseum'	Horticultural	Horticultural	Aceraceae	EDEN	1973		1
<i>Acer palmatum</i> 'Septemlobum'	Horticultural	Horticultural	Aceraceae	EDEN	1990		1
<i>Acer palmatum</i> 'Shindeshojo'	Horticultural	Horticultural	Aceraceae	EDEN	1993		1
<i>Acer palmatum</i> 'Shishigashira'	Horticultural	Horticultural	Aceraceae	ARBG	1992	Caves Tree Nurser	1
<i>Acer palmatum</i> 'Shishigashira'	Horticultural	Horticultural	Aceraceae	EDEN			1

<i>Acer palmatum</i> 'Sumingashi'	Horticultural	Horticultural	Aceraceae	EDEN	1990		2
<i>Acer palmatum</i> 'Villa Taranto'	Horticultural	Horticultural	Aceraceae	EDEN	1996		1
<i>Acer paxii</i>	China	Asia	Aceraceae	ARBG	1992	Hamilton City	1
<i>Acer pentaphyllum</i>	China	Asia	Aceraceae	ARBG	1993	Caves Tree Nurser	1
<i>Acer pentaphyllum</i>	China	Asia	Aceraceae	EDEN	1998	Caves Tree Nurser	1
<i>Acer platanoides</i>	Europe	Europe	Aceraceae	ARBG	1993	Wholesale Tree Co	1
<i>Acer platanoides</i>	Europe	Europe	Aceraceae	HAYMAN			1
<i>Acer platanoides</i>	Europe	Europe	Aceraceae	MANUKAU			15
<i>Acer platanoides</i>	Europe	Europe	Aceraceae	STREET			2
<i>Acer platanoides</i> 'Crimson King'	Horticultural	Horticultural	Aceraceae	UNI			1
<i>Acer platanoides</i> 'Palmatifidum' ('Dissectum')	Horticultural	Horticultural	Aceraceae	EDEN	1981		1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	UNITEC	Mature		1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	WESTERN			2
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	ALBERT			1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	HAYMAN			1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	ALBERON			1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	STREET			8
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	MANUKAU			8
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	ALBERTON			2
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	DEVONPORT			1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	CORNWALL			33
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	WINNI			1
<i>Acer pseudoplatanus</i>	Europe, Asia	Europe, Asia	Aceraceae	UNI			3
<i>Acer pseudoplatanus</i> 'Esk Sunset'	Horticultural	Horticultural	Aceraceae	EDEN	1998	Caves Tree Nurser	1
<i>Acer rubrum</i>	E USA	North America	Aceraceae	EDEN	1987		1
<i>Acer rufinerve</i>	Japan	Asia	Aceraceae	ARBG	1998	Caves Tree Nurser	1
<i>Acer saccharum</i>	USA	North America	Aceraceae	DOMAIN	1938	Watters	1
<i>Acer saccharum</i>	USA	North America	Aceraceae	UNI			1
<i>Acer saccharum</i>	USA	North America	Aceraceae	STREET			1
<i>Acer saccharum</i> ssp. <i>leucoderme</i>	USA	North America	Aceraceae	ARBG	1996	Caves Tree Nurser	1
<i>Acer sieboldianum</i> 'Silver Vein'	Horticultural	Horticultural	Aceraceae	EDEN	1998	Caves Tree Nurser	1
<i>Acer sikkimense</i>	Himalaya	Asia	Aceraceae	ARBG	1996	Caves Tree Nurser	1
<i>Acer sikkimense</i>	Himalaya	Asia	Aceraceae	ARBG	1997	Caves Tree Nurser	1

<i>Acer tartaricum</i> ssp. <i>ginnala</i>	Europe	Europe	Aceraceae	ARBG	1993	Joy Plants	1
<i>Acer truncatum</i>	China	Asia	Aceraceae	ARBG	1996	Caves Tree Nurser	1
<i>Acer x freemanii</i> 'Autumn Blaze'	Horticultural	Horticultural	Aceraceae	ARBG	1996	Allenton Nurseries	1
<i>Acer x freemanii</i> 'Autumn Blaze'	Horticultural	Horticultural	Aceraceae	EDEN	1985		1
<i>Beaucarnea recurvata</i>	Mexico	North America	Agavaceae	ARBG	1995	Mesa Gdn. Mexico	1
<i>Beaucarnea recurvata</i>	Mexico	North America	Agavaceae	EDEN	1979 +		1
<i>Beaucarnea recurvata</i>	Mexico	North America	Agavaceae	UNI			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	MARC	1899		10
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	ARBG	1993	ARBG Reserve	1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	GOVT	1949		1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	UNITEC	Semi M		2
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	ALBERT			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	EDEN	1989		1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	DOMAIN			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	VICTORIA			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	ALBERTON			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	HIGHWIC			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	HIGHWIC		Self sown	1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	HIGHWIC	1953-78		3
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	HIGHWIC	1978-95		1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	CAMBRIA			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	DEVONPORT			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	CORNWALL			98
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	MT WELL			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	WINNI			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	UNI			19
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	CHELSEA			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	ORATIA			1
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	STREET			139
<i>Cordyline australis</i>	New Zealand	Australasia	Agavaceae	SHORE			10
<i>Cordyline australis</i> 'Albertii'	Horticultural	Horticultural	Agavaceae	MARC	1989	Trade	1
<i>Cordyline australis</i> 'Albertii'	Horticultural	Horticultural	Agavaceae	ORATIA	1980	D&D	1
<i>Cordyline australis</i> 'Purpurea'	Horticultural	Horticultural	Agavaceae	EDEN	1995		1

<i>Cordyline australis</i> 'Purpurea'	Horticultural	Horticultural	Agavaceae	ORATIA	1990		1
<i>Cordyline australis</i> 'Variegata'	Horticultural	Horticultural	Agavaceae	UNI			1
<i>Cordyline banksii</i>	New Zealand	Australasia	Agavaceae	MARC	1996	A. Mosen	3
<i>Cordyline banksii</i>	New Zealand	Australasia	Agavaceae	ORATIA	1985	Waitakere Ranges	1
<i>Cordyline banksii</i> 'Purple Tower'	Horticultural	Horticultural	Agavaceae	ORATIA	1998	Stock in Nursery	1
<i>Cordyline banksii</i> 'Purpurea'	Horticultural	Horticultural	Agavaceae	ORATIA	1998	Stock in Nursery	1
<i>Cordyline baueri</i>	Norfolk Island	Australasia	Agavaceae	MARC	1987	M. Goodie	3
<i>Cordyline baueri</i>	Norfolk Island	Australasia	Agavaceae	CENTENNIAL			1
<i>Cordyline baueri</i>	Norfolk Island	Australasia	Agavaceae	STREET			1
<i>Cordyline kaspar</i>	Three Kings	Australasia	Agavaceae	MARC	1945	Three Kings	12
<i>Cordyline kaspar</i>	Three Kings	Australasia	Agavaceae	UNITEC	Mature		1
<i>Cordyline kaspar</i>	Three Kings	Australasia	Agavaceae	ORATIA	1990	MARC	1
<i>Cordyline kaspar</i>	Three Kings	Australasia	Agavaceae	STREET			1
<i>Cordyline kaspar</i> 'Green Goddess'	Horticultural	Horticultural	Agavaceae	ARBG	1994	Duncan & Davies	1
<i>Cordyline kaspar</i> 'Green Goddess'	Horticultural	Horticultural	Agavaceae	EDEEN	1998	Naturally Native	1
<i>Cordyline kaspar</i> 'Green Goddess'	Horticultural	Horticultural	Agavaceae	ORATIA	1995		1
<i>Cordyline oblecta</i>	Norfolk Island	Australasia	Agavaceae	ARBG	1998	G. Platt collected	1
<i>Cordyline pumilio</i>	New Zealand	Australasia	Agavaceae	MARC	1986	R. Beever	15
<i>Cordyline pumilio</i>	New Zealand	Australasia	Agavaceae	ARBG	1998	Auck. City Parks	1
<i>Cordyline pumilio</i>	New Zealand	Australasia	Agavaceae	STREET			1
<i>Cordyline pumilio</i>	New Zealand	Australasia	Agavaceae	EDEEN	1998	Naturally Native	1
<i>Cordyline pumilio</i>	New Zealand	Australasia	Agavaceae	ORATIA	1980	Waitakere Ranges	1
<i>Cordyline stricta</i>	Australia	Australasia	Agavaceae	ARBG	1994	Max Goodey	1
<i>Cordyline stricta</i>	Australia	Australasia	Agavaceae	STREET			1
<i>Cordyline terminalis</i>	Polynesia	Australasia	Agavaceae	EDEEN	1995		1
<i>Cordyline terminalis</i>	Polynesia	Australasia	Agavaceae	ORATIA	1985		1
<i>Dracaena deremensis</i>	Africa	Africa	Agavaceae	ENZED	1991		1
<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	MARC	1974	Trade	4
<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	ARBG	1990	Rainbow Seeds	1
<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	ARBG	1998	MARC	1
<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	EDEEN	1996		1
<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	ENZED	1996		1
<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	SHORE			1

<i>Dracaena draco</i>	Canary Island	Europe	Agavaceae	NOTABLE			1
<i>Cotinus coggygria</i>	Europe, Asia	Europe	Anacardiaceae	WINNI			1
<i>Cotinus coggygria</i>	Europe, Asia	Europe	Anacardiaceae	STREET			3
<i>Harpephyllum caffrum</i>	South Africa	Africa	Anacardiaceae	SPRINGS			1
<i>Harpephyllum caffrum</i>	South Africa	Africa	Anacardiaceae	ZOO			1
<i>Harpephyllum caffrum</i>	South Africa	Africa	Anacardiaceae	DOMAIN			1
<i>Harpephyllum caffrum</i>	South Africa	Africa	Anacardiaceae	UNI			1
<i>Harpephyllum caffrum</i>	South Africa	Africa	Anacardiaceae	STREET			7
<i>Pistacia chinensis</i>	China	Asia	Anacardiaceae	UNI			1
<i>Pistacia chinensis</i>	China	Asia	Anacardiaceae	STREET			1
<i>Rhus glabra</i> 'Laciniata'	Horticultural	Horticultural	Anacardiaceae	UNI			2
<i>Rhus succedanea</i>	Japan, India	Asia	Anacardiaceae	WINNI			1
<i>Rhus succedanea</i>	Japan, India	Asia	Anacardiaceae	CORNWALL			1
<i>Rhus succedanea</i>	Japan, India	Asia	Anacardiaceae	MANUKAU			35
<i>Rhus succedanea</i>	Japan, India	Asia	Anacardiaceae	STREET			11
<i>Rhus succedanea</i>	Japan, India	Asia	Anacardiaceae	NOTABLE			1
<i>Rhus typhina</i>	N America	N America	Anacardiaceae	STREET			1
<i>Schinus areira</i>	Chile	South America	Anacardiaceae	UNITEC	Post M		1
<i>Schinus areira</i>	Chile	South America	Anacardiaceae	SPRINGS			1
<i>Schinus areira</i>	Chile	South America	Anacardiaceae	CELLA			1
<i>Schinus areira</i>	Chile	South America	Anacardiaceae	STREET			31
<i>Schinus fargira</i>	Chile	South America	Anacardiaceae	STREET			1
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	RICHMOND			1
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	HAYMAN			1
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	DOMAIN			1
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	CAMBRIA			1
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	MT WELL			1
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	MANUKAU			107
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	UNI			2
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	STREET			71
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	SHORE			3
<i>Schinus molle</i>	Peru	South America	Anacardiaceae	NOTABLE			1
<i>Schinus terebinthifolius</i>	Brazil	South America	Anacardiaceae	HAYMAN			1

<i>Schinus terebinthifolius</i>	Brazil	South America	Anacardiaceae	DOMAIN			1
<i>Schinus terebinthifolius</i>	Brazil	South America	Anacardiaceae	MT WELL			1
<i>Schinus terebinthifolius</i>	Brazil	South America	Anacardiaceae	MANUKAU			336
<i>Schinus terebinthifolius</i>	Brazil	South America	Anacardiaceae	STREET			65
<i>Carissa macrocarpa</i>	Africa	Africa	Apocynaceae	DOMAIN			1
<i>Ilex altaclarensis</i> 'Golden King'	Horticultural	Horticultural	Aquifoliaceae	WINNI			1
<i>Ilex altaclarensis</i> 'Golden King'	Horticultural	Horticultural	Aquifoliaceae	UNI			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	UNITEC	Mature		1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	EDEN	1979		1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	RICHMOND			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	WILSON			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	CORNWALL			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	STREET			10
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	MT WELL			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	MT WELL			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	UNI			1
<i>Ilex aquifolium</i>	Europe	Europe	Aquifoliaceae	NOTABLE			1
<i>Ilex cornuta</i>	China	Asia	Aquifoliaceae	ARBG	1994	Mark Jurys	1
<i>Ilex kingiana (insignis)</i>	Himalaya	Asia	Aquifoliaceae	ARBG	1997	Glyn Church	1
<i>Ilex paraguariensis</i>	Paraguay, Argentina	South America	Aquifoliaceae	MARC	1981	Beaumonts Nu.	1
<i>Ilex perado</i> var. <i>platyphylla</i>	Canary Is, Azores	Europe	Aquifoliaceae	ARBG	1994	Glyn Church	1
<i>Archontophoenix alexandrae</i>	Queensland	Australasia	Aracaceae	MARC	1981		1
<i>Archontophoenix alexandrae</i>	Queensland	Australasia	Aracaceae	ARBG	1995	Landsend	1
<i>Archontophoenix alexandrae</i>	Queensland	Australasia	Aracaceae	ARBG	1998	Rainbow Park	1
<i>Archontophoenix alexandrae</i>	Queensland	Australasia	Aracaceae	ALBERON			1
<i>Archontophoenix alexandrae</i>	Queensland	Australasia	Aracaceae	ENZED	1993		1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	MARC	1981		1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	ARBG	1998	Rainbow Park	1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	LANDSENDT			1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	WAIM	1939	Progeny from 1900	1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	EDEN	1989 +		1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	ALBERON			1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	CAMBRIA			1

<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	DOMAIN			1
<i>Archontophoenix cunninghamiana</i>	Australia	Australasia	Aracaceae	ENZED	1989		1
<i>Archontophoenix maxima</i>	Queensland	Australasia	Aracaceae	ARBG	1998	Yungarra Nursery	1
<i>Archontophoenix</i> sp 'Mt Lewis' (<i>syn purpurea</i>)	Horticultural	Horticultural	Aracaceae	ARBG	1997	K. Johnson, Albany	1
<i>Archontophoenix</i> sp 'Mt Lewis' (<i>syn purpurea</i>)	Horticultural	Horticultural	Aracaceae	ALBERON			1
<i>Archontophoenix</i> sp 'Mt Lewis' (<i>syn purpurea</i>)	Horticultural	Horticultural	Aracaceae	WAIM	1987+		1
<i>Archontophoenix tuckeri</i>	Queensland	Australasia	Aracaceae	ARBG	1998	Opanuku Subtrop.	1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	ARBG	1992	Palm Farm	1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	MARC	1994	Private Collector	1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	DOMAIN			1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	LANDSENDT			1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	ALBERON			1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	CENTENNIAL			1
<i>Butia capitata</i>	Brazil, Argentina	South America	Aracaceae	ENZED	1994		1
<i>Butia eriopatha</i>	India, Burma	Asia	Aracaceae	ARBG	1998	Inge Hoffmann	1
<i>Butia yatay</i>	Argentina, Uruguay	South America	Aracaceae	ARBG	1995	M. Poulgrain	1
<i>Butia yatay</i>	Argentina, Uruguay	South America	Aracaceae	DOMAIN			1
<i>Butia yatay</i>	Argentina, Uruguay	South America	Aracaceae	OPANUKU			1
<i>Butia yatay</i>	Argentina, Uruguay	South America	Aracaceae	UNI			1
<i>Ceroxylon alpinum</i>	Columbia	South America	Aracaceae	MARC	1974	Scientific Trip -Rio	1
<i>Ceroxylon alpinum (syn andricola)</i>	Columbia	South America	Aracaceae	CENTENNIAL			1
<i>Chamaerops humilis</i>	Europe	Europe	Aracaceae	LANDSENDT			1
<i>Chamaerops humilis</i>	Europe	Europe	Aracaceae	ARBG	1997	B. Laughland	1
<i>Chamaerops humilis</i>	Europe	Europe	Aracaceae	ARBG	1997	S. Bano, France	1
<i>Chamaerops humilis</i>	Europe	Europe	Aracaceae	EDEN	1997		1
<i>Chamaerops humilis</i>	Europe	Europe	Aracaceae	OPANUKU			1
<i>Chamaerops humilis</i>	Europe	Europe	Aracaceae	ENZED			1
<i>Chamaerops humilis</i> var. <i>argentea</i>	Europe	Europe	Aracaceae	ARBG	1993	B. Laughland	1
<i>Hedyscepe canterburyana</i>	Lord Howe Island	Australasia	Aracaceae	ARBG	1995	Landsend	1
<i>Hedyscepe canterburyana</i>	Lord Howe Island	Australasia	Aracaceae	WAIM	1969	unknown	1
<i>Hedyscepe canterburyana</i>	Lord Howe Island	Australasia	Aracaceae	EDEN	1997		1
<i>Hedyscepe canterburyana</i>	Lord Howe Island	Australasia	Aracaceae	ALBERON			1
<i>Howea belmoreana</i>	Lord Howe Island	Australasia	Aracaceae	ARBG	1997	Palm Farm	1

<i>Howea belmoreana</i>	Lord Howe Island	Australasia	Aracaceae	WAIM	1996+	unknown	1
<i>Howea belmoreana</i>	Lord Howe Island	Australasia	Aracaceae	GOVH	1969		1
<i>Howea belmoreana</i>	Lord Howe Island	Australasia	Aracaceae	ALBERON			1
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	ARBG	1997	Landsendt	1
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	WAIM	1939+	unknown	1
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	EDEN	1989 +		1
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	LANDSENDT			1
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	ALBERON			1
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	HIGHWIC	1900-53		2
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	UNI			2
<i>Howea fosteriana</i>	Lord Howe Island	Australasia	Aracaceae	SHORE			3
<i>Jubaea chilensis</i>	Chile	South America	Aracaceae	ARBG	1998	Longwood Palm	1
<i>Jubaea chilensis</i>	Chile	South America	Aracaceae	ARBG	1997	Landsendt	1
<i>Jubaea chilensis</i>	Chile	South America	Aracaceae	EDEN	1997	Dick Endt	1
<i>Jubaea chilensis</i>	Chile	South America	Aracaceae	ALBERON			1
<i>Jubaea chilensis</i>	Chile	South America	Aracaceae	CELIA			1
<i>Jubaea chilensis</i>	Chile	South America	Aracaceae	NOTABLE			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	ARBG	1992	Palm Farm	1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	WAIM	1939+	unknown	1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	ALBERON			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	LANDSENDT			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	ZOO			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	ENZED			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	OPANUKU			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	UNI			1
<i>Livistona australis</i>	E Australia	Australasia	Aracaceae	NOTABLE			1
<i>Livistona chinensis</i>	Ryukyu Island	Asia	Aracaceae	MARC	1989	Private Collector	1
<i>Livistona chinensis</i>	Ryukyu Island	Asia	Aracaceae	ARBG	1996	Landsendt	1
<i>Livistona chinensis</i>	Ryukyu Island	Asia	Aracaceae	OPANUKU			1
<i>Livistona chinensis</i>	Ryukyu Island	Asia	Aracaceae	LANDSENDT			1
<i>Livistona chinensis</i>	Ryukyu Island	Asia	Aracaceae	ALBERON			1
<i>Livistona chinensis</i>	Ryukyu Island	Asia	Aracaceae	ENZED			1
<i>Livistona decipiens</i>	Queensland	Australasia	Aracaceae	ARBG	1993	Container Nursery	1

<i>Livistona decipiens</i>	Queensland	Australasia	Aracaceae	ALBERON			1
<i>Livistona jenkinsiana</i>	Himalayas	Asia	Aracaceae	ARBG	1997	Inge Hoffman	1
<i>Livistona saribus</i>	Asia	Asia	Aracaceae	OPANUKU			1
<i>Neodypsis decaryi</i>	Madagascar	Africa	Aracaceae	ENZED			1
<i>Parajubaea cocoides</i>	Ecuador	South America	Aracaceae	LANDSENDT			1
<i>Parajubaea cocoides</i>	Ecuador	South America	Aracaceae	ARBG	1996	Landsendt	1
<i>Phoenix acaulis</i>	Assam, Burma	Asia	Aracaceae	ARBG	1997	K. Johnson	1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	ARBG	1999		1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	UNITEC	Young		1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	WAIM	1939+	unknown	1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	ALBERT			10
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	RICHMOND			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	VICTORIA			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	WILSON			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	DOMAIN			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	ALBERON			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	CELIA			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	HIGHWIC		Self sown	2
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	CENTENNIAL			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	WAITAKERE			4
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	CORNWALL			34
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	MT WELL			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	LANDSENDT			1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	ENZED	1996		1
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	MANUKAU			63
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	UNI			2
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	STREET			31
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	SHORE			35
<i>Phoenix canariensis</i>	Canary Is.	Europe	Aracaceae	NOTABLE			1
<i>Phoenix dactylifera</i>	NAfrica	Africa	Aracaceae	ARBG	1996	M R Foster, Albany	1
<i>Phoenix loureirii</i>	India, China	Asia	Aracaceae	ARBG	1997	Inge Hoffman	1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	MARC	1994	Kings	1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	ARBG	1992	Palm Farm	1

<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	LANDSENDT			1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	WAIM	1939+	unknown	5
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	ALBERT			1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	OPANUKU			1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	DOMAIN			1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	ALBERON			1
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	WAITAKERE			2
<i>Phoenix reclinata</i>	Tropical Africa	Africa	Aracaceae	ENZED	1996		1
<i>Phoenix robellini</i>	Asia	Asia	Aracaceae	ARBG	1997	Kevin Johnson	1
<i>Phoenix robellini</i>	Asia	Asia	Aracaceae	ARBG	1987	Palm Society	1
<i>Phoenix robellini</i>	Asia	Asia	Aracaceae	LANDSENDT			1
<i>Phoenix robellini</i>	Asia	Asia	Aracaceae	ALBERON			1
<i>Phoenix robellini</i>	Asia	Asia	Aracaceae	UNI			3
<i>Phoenix rupicola</i>	India	Asia	Aracaceae	ARBG	1997	K. Johnson	1
<i>Phoenix rupicola</i>	India	Asia	Aracaceae	SHORE			3
<i>Phoenix sylvestris</i>	India, Bangladesh,	Pakistan	Aracaceae	ENZED			1
<i>Rhopalostylis baueri</i>	Norfolk Island	Australasia	Aracaceae	GOVH	1969		1
<i>Rhopalostylis baueri</i>	Norfolk Island	Australasia	Aracaceae	LANDSENDT			1
<i>Rhopalostylis baueri</i>	Norfolk Island	Australasia	Aracaceae	EDEN	1995		1
<i>Rhopalostylis baueri</i>	Norfolk Island	Australasia	Aracaceae	ALBERON			1
<i>Rhopalostylis baueri</i> var. <i>cheesemanii</i>	Kermadec Is	Australasia	Aracaceae	UNI			1
<i>Rhopalostylis baueri</i> var. <i>cheesemanii</i>	Kermadec Is	Australasia	Aracaceae	MARC	1986	Platts Nursery	5
<i>Rhopalostylis baueri</i> var. <i>cheesemanii</i>	Kermadec Is	Australasia	Aracaceae	ALBERON			1
<i>Rhopalostylis cheesemanii</i>	Raoul Island?	Australasia	Aracaceae	ARBG	1997	Akl. City Council	1
<i>Rhopalostylis cheesemanii</i>	Raoul Island?	Australasia	Aracaceae	WAIM	1974+	unknown	1
<i>Rhopalostylis cheesemanii</i>	Raoul Island?	Australasia	Aracaceae	ORATIA	1981	Kermadec Island	1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	MARC	1984	Platts Nursery	20
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	ARBG	1993-98		18
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	WAIM	1949+	unknown	1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	LANDSENDT			2
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	EDEN	1979 +		1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	ALBERON			1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	HIGHWIC		Self sown	3

<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	HIGHWIC	1978-95		1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	DOMAIN			1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	CORNWALL			23
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	UNI			3
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	MANUKAU			11
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	ORATIA	1980	Waitakere Ranges	1
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	STREET			6
<i>Rhopalostylis sapida</i>	New Zealand	Australasia	Aracaceae	NOTABLE			1
<i>Rhopalostylis sapida</i> 'Chatham Is'	Horticultural	Horticultural	Aracaceae	ALBERON			1
<i>Sabal bermudana</i>	Bahamas	North America	Aracaceae	ARBG	1998	Longwood Palm	1
<i>Sabal causarium</i>	Puerto Rico	South America	Aracaceae	ARBG	1998	M. Poulgrain	1
<i>Sabal mexicana</i>	Mexico	North America	Aracaceae	ARBG	1997	K. Johnson	1
<i>Sabal palmetto</i>	Florida, Bahamas	North America	Aracaceae	ARBG	1994	Pukeawa Nursery	1
<i>Sabal palmetto</i>	Florida, Bahamas	North America	Aracaceae	WAIM	1974+	unknown	1
<i>Sabal palmetto</i>	Florida, Bahamas	North America	Aracaceae	ALBERON			1
<i>Syagrus pseudococos</i>	Brazil	South America	Aracaceae	ARBG	1997	Inge Hoffman	1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	MARC	1979	Trade	1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	WAIM	1919+	progeny	10
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	UNITEC	Semi M		1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	LANDSENDT			1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	OPANUKU			1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	EDEN	1995		1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	ALBERON			1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	ENZED	1984	seed Aust.	1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	SHORE			1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	NOTABLE			1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	CENTENNIAL			1
<i>Syagrus romanoziffianum</i>	Brazil, Paraguay et	South America	Aracaceae	STREET			2
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Aracaceae	UNITEC	Mature		1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Aracaceae	MARC	1994	Private Collector	1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Aracaceae	WESTERN			10
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Aracaceae	OPANUKU			1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Aracaceae	EDEN	1998	Palm Co.	1

<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	ALBERT			31
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	WILSON			1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	LANDSENDT			1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	ALBERON			1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	CELIA			1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	HIGHWIC	1900-53		1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	CORNWALL			8
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	ENZED			1
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	UNI			23
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	MANUKAU			11
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	STREET			11
<i>Trachycarpus fortunei</i> (excelsa)	China, Japan	Asia	Araceae	SHORE			4
<i>Trachycarpus takil</i>	W Himalayas	Asia	Araceae	ARBG	1998	Opanuku	1
<i>Trachycarpus wagnerianus</i>	Asia	Asia	Araceae	ARBG	1998	Inge Hoffman	1
<i>Trithrinax acanthocoma</i>	Brazil, Argentina	South America	Araceae	OPANUKU			1
<i>Washingtonia filifera</i>	California, Arizona	North America	Araceae	NOTABLE			1
<i>Washingtonia filifera</i> (filamentosa)	California, Arizona	North America	Araceae	MARC	1989	Private Collector	1
<i>Washingtonia filifera</i> (filamentosa)	California, Arizona	North America	Araceae	ARBG	1979	Keith Boyer	1
<i>Washingtonia filifera</i> (filamentosa)	California, Arizona	North America	Araceae	WAIM	1919+	unknown	1
<i>Washingtonia filifera</i> (filamentosa)	California, Arizona	North America	Araceae	MANUKAU			2
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	MARC	1989	Private Collector	7
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	ARBG	1997	K. Johnson	1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	ALBERT			7
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	OPANUKU			1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	EDEN	1989 +		1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	LANDSENDT			1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	ALBERON			1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	DOMAIN			1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	MANUKAU			83
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	ENZED	1991		1
<i>Washingtonia robusta</i> (gracilis)	Mexico	North America	Araceae	STREET			15
<i>Caryota ochlandra</i>	China	China	Araceae	WAIM	1991	Barbara Jury	1
<i>Caryota ochlandra</i>	China	China	Araceae	ALBERON			1

<i>Caryota ochlandra</i>	China	China	Araceae	CENTENNIAL			1
<i>Agathis microstachya</i> (robusta?)	Australia	Australasia	Aracauriaceae	ST KENTS			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	MARC	1934	Dr. Cunningham	1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	ARBG	1996	Platts Nursery	1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	VICTORIA			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	ALBERT			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	EDEN	1979 +		1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	HAYMAN			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	MANUKAU			13
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	DOMAIN			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	WAITAKERE			2
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	ALBERTON			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	HIGHWIC	1978-95		1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	CAMBRIA			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	CHELSEA			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	CENTENNIAL			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	WAITAKERE			32
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	STREET			21
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	CORNWALL			276
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	WINNI			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	CEMETERY			1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	ORATIA	1950	Waitakere Ranges	1
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	UNI			12
<i>Agathis australis</i>	New Zealand	Australasia	Aracauriaceae	NOTABLE			1
<i>Agathis lanceolata</i>	New Caledonia	Australasia	Aracauriaceae	ARBG	1995	M. Bellingham	1
<i>Agathis lanceolata</i>	New Caledonia	Australasia	Aracauriaceae	SHORE			54
<i>Agathis macrophylla</i>	Fiji, Solomons	Australasia	Aracauriaceae	ARBG	1985	Hunua Nursery	1
<i>Agathis macrophylla</i>	Fiji, Solomons	Australasia	Aracauriaceae	SPRINGS			1
<i>Agathis macrophylla</i>	Fiji, Solomons	Australasia	Aracauriaceae	DOMAIN			1
<i>Agathis macrophylla</i>	Fiji, Solomons	Australasia	Aracauriaceae	CORNWALL			2
<i>Agathis montana</i>	New Caledonia	Australasia	Aracauriaceae	ARBG	1995	M. Bellingham	1
<i>Agathis moorei</i>	New Caledonia	Australasia	Aracauriaceae	ARBG	1985	Hunua Nursery	1
<i>Agathis palmerstonii</i>	Australia	Australasia	Aracauriaceae	GOVH	1899		1

<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	MARC	1995	Joy Plants	2
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	WESTERN			3
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	ALBERT			1
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	WILSON			1
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	DOMAIN			1
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	STREET			1
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	CELA			1
<i>Agathis robusta</i>	Australia	Australasia	Aracauriaceae	NOTABLE			1
<i>Araucaria angustifolia</i>	Brazil	South America	Aracauriaceae	ARBG	1998	Univ. Argntna	1
<i>Araucaria araucana (imbricata)</i>	Chile	South America	Aracauriaceae	DOMAIN			1
<i>Araucaria araucana (imbricata)</i>	Chile	South America	Aracauriaceae	CENTENNIAL			1
<i>Araucaria araucana (imbricata)</i>	Chile	South America	Aracauriaceae	STREET			1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	ARBG	1997	Lyndale Nurseries	1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	GOVH	1899+		1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	DOMAIN			1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	CELA			1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	UNI			1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	SHORE			1
<i>Araucaria bidwillii</i>	Australia	Australasia	Aracauriaceae	NOTABLE			1
<i>Araucaria columnaris</i>	New Caledonia	Australasia	Aracauriaceae	WESTERN			1
<i>Araucaria columnaris</i>	New Caledonia	Australasia	Aracauriaceae	ALBERT			1
<i>Araucaria columnaris</i>	New Caledonia	Australasia	Aracauriaceae	VICTORIA			1
<i>Araucaria columnaris</i>	New Caledonia	Australasia	Aracauriaceae	HAYMAN			1
<i>Araucaria columnaris</i>	New Caledonia	Australasia	Aracauriaceae	DOMAIN			1
<i>Araucaria columnaris</i>	New Caledonia	Australasia	Aracauriaceae	WINNI			1
<i>Araucaria cookii (columnaris)</i>	New Caledonia	Australasia	Aracauriaceae	UNITEC	Semi M		1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	WESTERN			1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	CELA			1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	DOMAIN			1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	CORNWALL			1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	UNI			1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	SHORE			1
<i>Araucaria cunninghamii</i>	Australia	Australasia	Aracauriaceae	NOTABLE			1

<i>Araucaria cunninghamii</i> var. <i>papuana</i>	Papua New Guinea	Australasia	Aracauriaceae	ARBG	1998	G. Platt	
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	HAYMAN			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	MARC	1979		
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	ARBG	1998	G. Platt	
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	GOVH	1899		
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	UNITEC	Mature		
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	WILSON			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	WESTERN			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	ALBERT			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	OPANUKU			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	MANUKAU			15
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	STREET			2
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	EDEN	1989 +		
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	DOMAIN			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	CELA			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	HIGHWIC	1978-95		
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	HIGHWIC	863-1900		
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	CENTENNIAL			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	WAITAKERE			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	CORNWALL			4
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	MT WELL			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	WINNI			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	UNI			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	SHORE			
<i>Araucaria heterophylla</i>	Norfolk Island	Australasia	Aracauriaceae	NOTABLE			
<i>Araucaria hunsteinii</i>	Papa New Guinea	Australasia	Aracauriaceae	ARBG	1999	G. Platt	
<i>Aralia elata</i>	China, Japan	Asia	Araliaceae	UNI			
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	CENTENNIAL			
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	CAMBRIA			
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	ORATIA			
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	MT WELL			
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	CORNWALL			
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	UNI			

<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	STREET		31
<i>Meryta sinclairii</i>	New Zealand	Australasia	Araliaceae	NOTABLE		1
<i>Pseudopanax arboreus</i>	New Zealand	Australasia	Araliaceae	CORNWALL		2
<i>Pseudopanax arboreus</i>	New Zealand	Australasia	Araliaceae	MANUKAU		4
<i>Pseudopanax arboreus</i>	New Zealand	Australasia	Araliaceae	STREET		2
<i>Pseudopanax colensoi</i>	New Zealand	Australasia	Araliaceae	CORNWALL		2
<i>Pseudopanax crassifolium</i>	New Zealand	Australasia	Araliaceae	CORNWALL		2
<i>Pseudopanax crassifolium</i>	New Zealand	Australasia	Araliaceae	UNI		1
<i>Pseudopanax crassifolium</i>	New Zealand	Australasia	Araliaceae	MANUKAU		1
<i>Pseudopanax crassifolium</i>	New Zealand	Australasia	Araliaceae	STREET		1
<i>Pseudopanax ferox</i>	New Zealand	Australasia	Araliaceae	UNI		1
<i>Pseudopanax laetus</i>	New Zealand	Australasia	Araliaceae	UNI		1
<i>Pseudopanax laetus</i>	New Zealand	Australasia	Araliaceae	MANUKAU		1
<i>Pseudopanax laetus</i>	New Zealand	Australasia	Araliaceae	STREET		1
<i>Pseudopanax lessonii</i>	New Zealand	Australasia	Araliaceae	CORNWALL		23
<i>Pseudopanax lessonii</i>	New Zealand	Australasia	Araliaceae	UNI		2
<i>Pseudopanax lessonii</i>	New Zealand	Australasia	Araliaceae	MANUKAU		11
<i>Pseudopanax lessonii</i>	New Zealand	Australasia	Araliaceae	STREET		14
<i>Pseudopanax lessonii hybrid</i>	New Zealand	Australasia	Araliaceae	MANUKAU		83
<i>Pseudopanax purpureus</i>	Horticultural	Horticultural	Araliaceae	MANUKAU		18
<i>Schefflera actinophylla</i>	Australia	Australasia	Araliaceae	ALBERT		1
<i>Schefflera actinophylla</i>	Australia	Australasia	Araliaceae	UNI		4
<i>Schefflera actinophylla</i>	Australia	Australasia	Araliaceae	MANUKAU		7
<i>Schefflera arboricola</i>	Taiwan	Asia	Araliaceae	MANUKAU		3
<i>Schefflera arboricola</i>	Taiwan	Asia	Araliaceae	STREET		6
<i>Alnus cordata</i>	Italy, Corsica	Europe	Betulaceae	MANUKAU		58
<i>Alnus cordata</i>	Italy, Corsica	Europe	Betulaceae	STREET		1
<i>Alnus cordata</i>	Italy, Corsica	Europe	Betulaceae	NOTABLE		1
<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	ARBG	1983	1
<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	HAYMAN		1
<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	DOMAIN		1
<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	CORNWALL		1
<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	MANUKAU		26

<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	STREET		6
<i>Alnus glutinosa</i>	Europe, Nth Africa	Europe, Nth Africa	Betulaceae	WINNI		1
<i>Alnus hirsuta var. manschurica</i>	Asia	Asia	Betulaceae	ARBG	1998	Morta Arb./USA
<i>Alnus incana 'Laciniata'</i>	Horticultural	Horticultural	Betulaceae	ARBG	1984	New Plymouth C.C
<i>Alnus incana 'Laciniata'</i>	Horticultural	Horticultural	Betulaceae	UNI		1
<i>Alnus incana 'Pendula'</i>	Horticultural	Horticultural	Betulaceae	ARBG	1993	Caves Tree Nurser,
<i>Alnus jorullensis</i>	Mexico, Argentina	North & South Am	Betulaceae	ARBG	1995	Coatsville Tree Nu.
<i>Alnus jorullensis</i>	Mexico, Argentina	North & South Am	Betulaceae	MANUKAU		3
<i>Alnus jorullensis</i>	Mexico, Argentina	North & South Am	Betulaceae	STREET		5
<i>Alnus rubra</i>	USA	North America	Betulaceae	CORNWALL		2
<i>Alnus rubra</i>	USA	North America	Betulaceae	MANUKAU		13
<i>Betula alba</i>	N America	North America	Betulaceae	VICTORIA		1
<i>Betula albo-sinensis var. septentrionalis</i>	China	Asia	Betulaceae	ALBERT		7
<i>Betula albo-sinensis var. septentrionalis</i>	China	Asia	Betulaceae	ARBG	1994	Caves Tree Nurser,
<i>Betula alleghniensis (lutea)</i>	N America	N America	Betulaceae	STREET		1
<i>Betula alnoides</i>	China, Szechuan, Y	Asia	Betulaceae	ARBG	1992	Caves Tree Nurser,
<i>Betula costata</i>	Manchuria, Korea	Asia	Betulaceae	ARBG	1993	Caves Tree Nurser,
<i>Betula cylindrostachya</i>	Yunnan to India	Asia	Betulaceae	ARBG	1998	Caves Tree Nurser,
<i>Betula davurica</i>	Asia	Asia	Betulaceae	MANUKAU		6
<i>Betula ermanii</i>	Japan, Korea	Asia	Betulaceae	ARBG	1998	Morta Arb./USA
<i>Betula ermanii</i>	Japan, Korea	Asia	Betulaceae	UNI		1
<i>Betula grossa</i>	Japan	Asia	Betulaceae	ARBG	1995	Top Trees Nursery
<i>Betula jacquemontii</i>	Himalaya	Asia	Betulaceae	ARBG	1994	Caves Tree Nurser,
<i>Betula luminifera</i>	China	Asia	Betulaceae	ARBG	1994	Caves Tree Nurser,
<i>Betula nigra 'Heritage'</i>	Horticultural	Horticultural	Betulaceae	ARBG	1996	Caves Tree Nurser,
<i>Betula nigra 'Heritage'</i>	Horticultural	Horticultural	Betulaceae	UNI		1
<i>Betula nigra 'Uru-tawhai'</i>	Horticultural	Horticultural	Betulaceae	ARBG	1996	Caves Tree Nurser,
<i>Betula papyrifera</i>	N America	North America	Betulaceae	MANUKAU		17
<i>Betula papyrifera</i>	N America	North America	Betulaceae	STREET		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	UNITEC	Mature	4
<i>Betula pendula</i>	Europe	Europe	Betulaceae	UNITEC	Young	2
<i>Betula pendula</i>	Europe	Europe	Betulaceae	UNITEC	Semi M	11
<i>Betula pendula</i>	Europe	Europe	Betulaceae	UNITEC		1

<i>Betula pendula</i>	Europe	Europe	Betulaceae	WESTERN		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	ALBERT		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	EDEN		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	STREET		679
<i>Betula pendula</i>	Europe	Europe	Betulaceae	HAYMAN		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	MANUKAU		974
<i>Betula pendula</i>	Europe	Europe	Betulaceae	DOMAIN		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	HIGHWIC	1978-95	1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	CAMBRIA		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	CORNWALL		67
<i>Betula pendula</i>	Europe	Europe	Betulaceae	CEMETERY		1
<i>Betula pendula</i>	Europe	Europe	Betulaceae	UNI		5
<i>Betula pendula</i> 'Dalecarlica'	Horticultural	Horticultural	Betulaceae	UNI		1
<i>Betula pendula</i> 'Youngii'	Horticultural	Horticultural	Betulaceae	EDEN	1996	John Kenyon & Te Puna Cottage 1
<i>Betula pendula</i> 'Youngii'	Horticultural	Horticultural	Betulaceae	UNI		1
<i>Betula platyphylla</i> var. <i>japonica</i>	NE Asia	Asia	Betulaceae	ARBG	1995	Top Trees Nursery 1
<i>Betula platyphylla</i> var. <i>szechuanica</i>	Asia	Asia	Betulaceae	ARBG	1994	Glyn Church 1
<i>Betula populifolia</i>	E N America	North America	Betulaceae	ARBG	1997	Allenton Nurseries 1
<i>Betula pubescens</i>	Europe to Siberia	Europe	Betulaceae	ARBG	1997	Allenton Nurseries 1
<i>Betula pubescens</i>	Europe to Siberia	Europe	Betulaceae	CORNWALL		20
<i>Betula pubescens</i>	Europe to Siberia	Europe	Betulaceae	WINNI		1
<i>Betula schmidtii</i>	Japan, Korea, Manchuria	Asia	Betulaceae	ARBG	1996	Caves Tree Nursery 1
<i>Carpinus betulus</i>	Europe, Persia	Europe & Asia mid	Betulaceae	ARBG	1993	
<i>Carpinus betulus</i>	Europe, Persia	Europe & Asia mid	Betulaceae	DOMAIN		1
<i>Carpinus betulus</i>	Europe, Persia	Europe & Asia mid	Betulaceae	UNI		2
<i>Carpinus japonica</i>	Japan	Asia	Betulaceae	ARBG	1998	Allenton Nurseries 1
<i>Carpinus laxiflora</i>	Japan	Asia	Betulaceae	ARBG	1995	Top Trees Nursery 1
<i>Corylus avellana</i>	Europe	Europe	Betulaceae	WINNI		2
<i>Catalpa bignonioides</i>	USA	North America	Bignoniaceae	ALBERT		1
<i>Catalpa bignonioides</i>	USA	North America	Bignoniaceae	CORNWALL		2
<i>Catalpa bignonioides</i>	USA	North America	Bignoniaceae	WINNI		1
<i>Catalpa bignonioides</i>	USA	North America	Bignoniaceae	UNI		2

<i>Catalpa bignonioides</i>	USA	North America	Bignoniaceae	STREET		1
<i>Catalpa fargesii</i> f. <i>duclouxii</i>	China	Asia	Bignoniaceae	ARBG	1997	Top Trees Nursery 1
<i>Catalpa speciosa</i>	USA	North America	Bignoniaceae	DOMAIN		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	UNITEC	Post M	1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	UNITEC	Mature	1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	UNITEC	Semi M	4
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	UNITEC		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	GOVH	1949	1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	ALBERT		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	VICTORIA		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	CELIA		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	HIGHWIC	1900-53	1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	CAMBRIA		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	CENTENNIAL		1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	CORNWALL		2
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	UNI		9
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	STREET		70
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	MANUKAU		70
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	SHORE		4
<i>Jacaranda mimosifolia</i>	Argentina	South America	Bignoniaceae	ARBG	1982	1
<i>Jacaranda mimosifolia</i>	Argentina	South America	Bignoniaceae	ARBG	1989	1
<i>Jacaranda mimosifolia</i>	Argentina	South America	Bignoniaceae	MARC	1949	1
<i>Jacaranda mimosifolia</i>	Argentina	South America	Bignoniaceae	EDEN	1989 +	1
<i>Jacaranda mimosifolia</i>	Tropical America	South America	Bignoniaceae	NOTABLE		1
<i>Jacaranda mimosifolia</i> (pollarded)	Tropical America	South America	Bignoniaceae	STREET		1
<i>Paulownia elongata</i>	China	Asia	Bignoniaceae	ARBG	1997	Allenton Nurseries 1
<i>Paulownia elongata</i>	China	Asia	Bignoniaceae	CORNWALL		80
<i>Paulownia fortunei</i>	China, Japan	Asia	Bignoniaceae	ARBG	1990	Hunua Nurseries 1
<i>Paulownia tomentosa</i>	China	Asia	Bignoniaceae	UNITEC	Semi M	1
<i>Paulownia tomentosa</i>	China	Asia	Bignoniaceae	ALBERT		2
<i>Paulownia tomentosa</i>	China	Asia	Bignoniaceae	RICHMOND		1
<i>Paulownia tomentosa</i>	China	Asia	Bignoniaceae	MANUKAU		5
<i>Paulownia tomentosa</i>	China	Asia	Bignoniaceae	MT WELL		1

<i>Paulownia tomentosa</i>	China	Asia	Bignoniaceae	STREET		12
<i>Paulownia tomentosa (imperialis)</i>	China	Asia	Bignoniaceae	ARBG	1989	1
<i>Radermachera sinensis</i>	China	Asia	Bignoniaceae	ARBG	1998	1
<i>Radermachera sinensis</i>	China	Asia	Bignoniaceae	MANUKAU		4
<i>Radermachera sinensis</i>	China	Asia	Bignoniaceae	DOMAIN		1
<i>Radermachera sinensis</i>	China	Asia	Bignoniaceae	CAMBRIA		1
<i>Spathodea campanulata</i>	Africa	Africa	Bignoniaceae	UNI		1
<i>Chiranthodendron pentadactylon</i>	Mexico	North America	Bombacaceae	ALBERT		1
<i>Chiranthodendron pentadactylon</i>	Mexico	North America	Bombacaceae	CENTENNIAL		1
<i>Chiranthodendron pentadactylon</i>	Mexico	North America	Bombacaceae	ZOO		1
<i>Chiranthodendron pentadactylon</i>	Mexico	North America	Bombacaceae	STREET		3
<i>Chorisia insignis</i>	Peru	South America	Bombacaceae	OPANUKU		1
<i>Chorisia speciosa</i>	Brazil	South America	Bombacaceae	DOMAIN		1
<i>Chorisia speciosa</i>	Brazil	South America	Bombacaceae	CENTENNIAL		1
<i>Chorisia speciosa</i>	Brazil	South America	Bombacaceae	UNI		1
<i>Chorisia speciosa</i>	Brazil	South America	Bombacaceae	STREET		1
<i>Ostrya carpinifolia</i>	Europe, Turkey, Syria	Europe	Carpinaceae	CENTENNIAL		1
<i>Allocasuarina torulosa</i>	Australia	Australasia	Casuarinaceae	UNI		1
<i>Casuarina cunninghamiana</i>	Izmir & Antalya, Turkey	Europe	Casuarinaceae	WESTERN		1
<i>Casuarina cunninghamiana</i>	Izmir & Antalya, Turkey	Europe	Casuarinaceae	HAYMAN		1
<i>Casuarina cunninghamiana</i>	Izmir & Antalya, Turkey	Europe	Casuarinaceae	SPRINGS		1
<i>Casuarina cunninghamiana</i>	Izmir & Antalya, Turkey	Europe	Casuarinaceae	UNI		1
<i>Casuarina cunninghamiana</i>	Izmir & Antalya, Turkey	Europe	Casuarinaceae	STREET		71
<i>Casuarina equisetifolia</i>	Izmir & Antalya, Turkey	Europe	Casuarinaceae	VICTORIA		1
<i>Casuarina glauca</i>	Australia	Australasia	Casuarinaceae	HAYMAN		1
<i>Casuarina glauca</i>	Australia	Australasia	Casuarinaceae	CORNWALL		2
<i>Casuarina glauca</i>	Australia	Australasia	Casuarinaceae	STREET		1
<i>Casuarina glauca</i>	Australia	Australasia	Casuarinaceae	MT WELL		1
<i>Casuarina torulosa</i>	Australia	Australasia	Casuarinaceae	STREET		4
<i>Maytenus boaria</i>	Chile	South America	Celastraceae	UNI		8
<i>Maytenus boaria</i>	Chile	South America	Celastraceae	STREET		1
<i>Cephalotaxus fortunei</i>	East China	Asia	Cephalotaxaceae	CORNWALL		1
<i>Cephalotaxus fortunei</i>	East China	Asia	Cephalotaxaceae	NOTABLE		1

<i>Cephalotaxus harringtonia</i>	Japan, Korea	Asia	Cephalotaxaceae	DOMAIN		1
<i>Cephalotaxus harringtonia</i>	Japan, Korea	Asia	Cephalotaxaceae	WINNI		1
<i>Cephalotaxus harringtonia var. drupacaea</i>	Japan, China	Asia	Cephalotaxaceae	CELIA		1
<i>Cephalotaxus harringtonia var. drupacaea</i>	Japan, China	Asia	Cephalotaxaceae	CORNWALL		4
<i>Cephalotaxus harringtonia var. drupacaea</i>	Japan, China	Asia	Cephalotaxaceae	UNI		2
<i>Cercidiphyllum japonicum</i>	Japan	Asia	Cercidiphyllaceae	UNI		1
<i>Clethra arborea</i>	North America	North America	Clethraceae	STREET		1
<i>Cornus capitata</i>	India, Himalayas	Asia	Cornaceae	UNI		1
<i>Cornus capitata</i>	India, Himalayas	Asia	Cornaceae	STREET		1
<i>Cornus capitata A749</i>	India, Himalayas	Asia	Cornaceae	CORNWALL		36
<i>Cornus florida</i>	North America	North America	Cornaceae	STREET		2
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	UNITEC	Young	1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	UNITEC	Semi M	2
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	UNITEC	Mature	2
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	UNITEC		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	WESTERN		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	ALBERTON		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	HIGHWIC	1953-78	1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	WILSON		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	STREET		801
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	VICTORIA		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	HIGHWIC	1900-53	1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	CAMBRIA		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	CENTENNIAL		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	WAITAKERE		2
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	DEVONPORT		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	CORNWALL		184
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	MT WELL		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	WINNI		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	CEMETERY		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	ORATIA		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	CHELSEA		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	UNI		10

<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	SHORE		11
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	NOTABLE		1
<i>Corynocarpus laevigatus</i>	New Zealand	Australasia	Corynocarpaceae	ST KENTS		1
<i>Ceratopetalum gummiferum</i>	Australia	Australasia	Cunoniaceae	CORNWALL		10
<i>Ceratopetalum gummiferum</i>	Australia	Australasia	Cunoniaceae	UNI		2
<i>Ceratopetalum gummiferum</i>	Australia	Australasia	Cunoniaceae	STREET		1
<i>Cunonia capensis</i>	South Africa	Africa	Cunoniaceae	ZOO		1
<i>Cunonia capensis</i>	South Africa	Africa	Cunoniaceae	UNI		3
<i>Cunonia capensis</i>	South Africa	Africa	Cunoniaceae	STREET		1
<i>Weinmania racemosa</i>	New Zealand	Australasia	Cunoniaceae	CORNWALL		1
<i>Weinmania racemosa</i>	New Zealand	Australasia	Cunoniaceae	STREET		1
<i>Callitris glauca (columnaris)</i>	Australia	Australasia	Cupressaceae	SPRINGS		1
<i>Callitris macleayana</i>	Australia	Australasia	Cupressaceae	CELIA		1
<i>Callitris oblonga</i>	Tasmania	Australasia	Cupressaceae	ARBG	1993 Joy Plants	1
<i>Calocedrus decurrens</i>	California	North America	Cupressaceae	UNI		1
<i>Calocedrus decurrens</i>	California	North America	Cupressaceae	DOMAIN		1
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	WESTERN		3
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	ALBERT		1
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	WILSON		3
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	RICHMOND		1
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	STREET		15
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	DOMAIN		1
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	CORNWALL		25
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	MT WELL		1
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	CEMETERY		1
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	SHORE		3
<i>Chamaecyparis lawsoniana</i>	California	North America	Cupressaceae	NOTABLE		1
<i>Chamaecyparis obtusa</i>	Japan	Asia	Cupressaceae	CORNWALL		25
<i>Chamaecyparis obtusa</i>	Japan	Asia	Cupressaceae	STREET		1
<i>Chamaecyparis pisifera</i>	Japan	Asia	Cupressaceae	WILSON		1
<i>Chamaecyparis pisifera</i>	Japan	Asia	Cupressaceae	STREET		2
<i>Chamaecyparis thuyoides</i>	North America	North America	Cupressaceae	STREET		2
<i>Cupressocyparis leylandii</i>	Horticultural	Horticultural	Cupressaceae	ALBERT		1

<i>Cupressocyparis leylandii</i>	Horticultural	Horticultural	Cupressaceae	HIGHWIC	1978-95	1
<i>Cupressocyparis leylandii</i>	Horticultural	Horticultural	Cupressaceae	STREET		1
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Ice'	Horticultural	Horticultural	Cupressaceae	ARBG	1983	1
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Ice'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Ice'	Horticultural	Horticultural	Cupressaceae	ARBG	1996	Duncan & Davies
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Ice'	Horticultural	Horticultural	Cupressaceae	UNI		1
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Blue Pyramid'	Horticultural	Horticultural	Cupressaceae	EDEN	1985	1
<i>Cupressus arizonica</i> var. <i>glabra</i> 'Limelight'	Horticultural	Horticultural	Cupressaceae	ARBG	1998	Little Wonder
<i>Cupressus benthami</i> (<i>lusitanica</i> var. <i>benthami</i>)	Mexico	North America	Cupressaceae	GOVH	1939	1
<i>Cupressus cashmeriana</i>	Kashmir	Asia	Cupressaceae	ALBERT		1
<i>Cupressus ducloxiana</i>	China	Asia	Cupressaceae	ARBG	1998	Top Trees Nursery
<i>Cupressus funebris</i>	China	Asia	Cupressaceae	CENTENNIAL		1
<i>Cupressus funebris</i>	China	Asia	Cupressaceae	DOMAIN		1
<i>Cupressus glabra</i>	North America	North America	Cupressaceae	WILSON		1
<i>Cupressus glabra</i> 'Blue Ice'	Horticultural	Horticultural	Cupressaceae	WINNI		1
<i>Cupressus goveniana</i>	North America	North America	Cupressaceae	NOTABLE		1
<i>Cupressus guadalupensis</i>	North America	North America	Cupressaceae	ARBG	1998	Cedar Lodge
<i>Cupressus lusitanica</i>	Mexico to Honduras	North America	Cupressaceae	WESTERN		4
<i>Cupressus lusitanica</i>	Mexico to Honduras	North America	Cupressaceae	WINNI		1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	GOVH	1909	8
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	UNITEC	Mature	9
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	WESTERN		3
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	ALBERT		2
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	WILSON		4
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	RICHMOND		1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	HAYMAN		1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	WAITAKERE		2
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	STREET		1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	CELIA		1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	DOMAIN		1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	WAITAKERE		2
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	CORNWALL		188
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	MT WELL		1

<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	WINNI			1
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	SHORE			37
<i>Cupressus macrocarpa</i>	California	North America	Cupressaceae	NOTABLE			1
<i>Cupressus macrocarpa</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	HIGHWIC	1953-78		1
<i>Cupressus macrocarpa</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	ALBERT			1
<i>Cupressus macrocarpa</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	CORNWALL			2
<i>Cupressus macrocarpa</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	UNI			2
<i>Cupressus macrocarpa</i> 'Golden Pillar'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Wholesale Tree Co.	2
<i>Cupressus macrocarpa</i> 'Greenstead Magnificent'	Horticultural	Horticultural	Cupressaceae	ARBG	1991	Tandarra Nursery	1
<i>Cupressus macrocarpa</i> 'Greenstead Magnificent'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge	1
<i>Cupressus macrocarpa</i> 'Greenstead Magnificent'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Wholesale Tree Co.	1
<i>Cupressus macrocarpa</i> 'Greenstead Magnificent'	Horticultural	Horticultural	Cupressaceae	ARBG	1996	Duncan & Davies	2
<i>Cupressus macrocarpa</i> 'Horizontalis Aureus'	Horticultural	Horticultural	Cupressaceae	NOTABLE			1
<i>Cupressus macrocarpa</i> 'Saligna'	Horticultural	Horticultural	Cupressaceae	UNI			1
<i>Cupressus macrocarpa</i> mutation	California	California	Cupressaceae	ARBG	1995	Platts Nursery	1
<i>Cupressus saligna</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	WINNI			1
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	ZOO			1
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	HIGHWIC	863-1900		1
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	WILSON			5
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	CORNWALL			22
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	STREET			22
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	MT WELL			1
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	DOMAIN			1
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	UNI			2
<i>Cupressus sempervirens</i>	Mediterranean	Europe	Cupressaceae	NOTABLE			1
<i>Cupressus sempervirens</i> 'Gracilis'	Horticultural	Horticultural	Cupressaceae	ARBG	1981		1
<i>Cupressus sempervirens</i> 'Gracilis'	Horticultural	Horticultural	Cupressaceae	EDEEN	1969		1
<i>Cupressus sempervirens</i> 'Gracilis'	Horticultural	Horticultural	Cupressaceae	SHORE			4
<i>Cupressus sempervirens</i> 'Stricta'	Horticultural	Horticultural	Cupressaceae	HIGHWIC	1953-78		1
<i>Cupressus sempervirens</i> 'Stricta'	Horticultural	Horticultural	Cupressaceae	UNI			5
<i>Cupressus sempervirens</i> 'Stricta'	Horticultural	Horticultural	Cupressaceae	STREET			1
<i>Cupressus sempervirens</i> 'Swanes Gold'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	Cedar Lodge	1
<i>Cupressus sempervirens</i> 'Swanes Gold'	Horticultural	Horticultural	Cupressaceae	STREET			1

<i>Cupressus sempervirens</i> 'Totem Pole'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Wholesale Tree Co.	1
<i>Cupressus sempervirens</i> 'Totem Pole'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Duncan & Davies	1
<i>Cupressus sempervirens</i> var. <i>pyramidata</i>	Horticultural	Horticultural	Cupressaceae	DOMAIN			1
<i>Cupressus sempervirens</i> var. <i>sempervirens</i>	Horticultural	Horticultural	Cupressaceae	ST KENTS			1
<i>Cupressus sempervirens</i> var. <i>sempervirens</i> (var. <i>stricta</i>)	Horticultural	Horticultural	Cupressaceae	EDEEN	1982		1
<i>Cupressus torulosa</i>	Himalaya	Asia	Cupressaceae	WESTERN			11
<i>Cupressus torulosa</i>	Himalaya	Asia	Cupressaceae	EDEEN	1974		1
<i>Cupressus torulosa</i>	Himalaya	Asia	Cupressaceae	EDEEN	1976		1
<i>Cupressus torulosa</i>	Himalaya	Asia	Cupressaceae	DOMAIN			1
<i>Cupressus torulosa</i>	Himalaya	Asia	Cupressaceae	STREET			1
<i>Cupressus torulosa</i>	Himalaya	Asia	Cupressaceae	MANUKAU			53
<i>Cupressus torulosa</i> 'Batley'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge	1
<i>Juniperus bermudiana</i>	Bermuda Island	North America	Cupressaceae	ARBG	1998	Cedar Lodge	1
<i>Juniperus chinensis</i>	China, Japan	Asia	Cupressaceae	ARBG	1981		2
<i>Juniperus chinensis</i>	China, Japan	Asia	Cupressaceae	EDEEN	1979 +		1
<i>Juniperus chinensis</i>	China, Japan	Asia	Cupressaceae	STREET			6
<i>Juniperus chinensis</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge	1
<i>Juniperus chinensis</i> 'Blue Point'	Horticultural	Horticultural	Cupressaceae	ARBG	1984	Duncan & Davies	1
<i>Juniperus chinensis</i> 'Blue Point'	Horticultural	Horticultural	Cupressaceae	UNI			4
<i>Juniperus chinensis</i> 'Columnaris Glauca'	Horticultural	Horticultural	Cupressaceae	ARBG	1981		1
<i>Juniperus chinensis</i> 'Columnaris Glauca'	Horticultural	Horticultural	Cupressaceae	EDEEN	1987		1
<i>Juniperus chinensis</i> 'Densa Spartan'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	Cedar Lodge	1
<i>Juniperus chinensis</i> 'Expansa Aureospicata'	Horticultural	Horticultural	Cupressaceae	ARBG	1981		1
<i>Juniperus chinensis</i> 'Expansa Variegata'	Horticultural	Horticultural	Cupressaceae	ARBG	1981		1
<i>Juniperus chinensis</i> 'Gold Coast'	Horticultural	Horticultural	Cupressaceae	EDEEN	1994		1
<i>Juniperus chinensis</i> 'Gold Star'	Horticultural	Horticultural	Cupressaceae	ARBG	1996	Duncan & Davies	3
<i>Juniperus chinensis</i> 'Kaizuka Variegata'	Horticultural	Horticultural	Cupressaceae	ARBG	1981		1
<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	MARC	1989	Trade	1
<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	ARBG	1978		1
<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	ARBG	1981		1
<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	ARBG	1985		1
<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Wholesale Tree Co.	1
<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	EDEEN			1

<i>Juniperus chinensis</i> 'Kaizuka'	Horticultural	Horticultural	Cupressaceae	CENTENNIAL		1
<i>Juniperus chinensis</i> 'Kuriwao Gold'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus chinensis</i> 'Plumosa Aurea'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus chinensis</i> 'Plumosa Aureovariegata'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	Cedar Lodge 2
<i>Juniperus chinensis</i> 'Pyramidalis'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	?
<i>Juniperus chinensis</i> 'Pyramidalis'	Horticultural	Horticultural	Cupressaceae	CENTENNIAL		1
<i>Juniperus communis</i>	Europe, Asia, China	Europe, Asia, North America	Cupressaceae	ARBG	1990	Blackwood 2
<i>Juniperus communis</i>	Europe, Asia, China	Europe, Asia, North America	Cupressaceae	ARBG	1991	Chiltern Seeds 1
<i>Juniperus communis</i> 'Depressa Aurea'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus communis</i> 'Depressa Aurea'	Horticultural	Horticultural	Cupressaceae	ARBG	1984	1
<i>Juniperus communis</i> 'Depressa Aurea'	Horticultural	Horticultural	Cupressaceae	ARBG	1992	Wholesale Tree Co. 1
<i>Juniperus communis</i> 'Depressed Star'	Horticultural	Horticultural	Cupressaceae	ARBG	1988	Cedar Lodge 1
<i>Juniperus communis</i> 'Depressed Star'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Wholesale Tree Co. 1
<i>Juniperus communis</i> 'Repanda'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus communis</i> 'Repanda'	Horticultural	Horticultural	Cupressaceae	ARBG	1985	1
<i>Juniperus communis f. suecica</i> ('Fastigiata')	Europe, Asia, China	Europe, Asia, North America	Cupressaceae	ARBG	1993	Cedar Lodge 1
<i>Juniperus conferta</i>	Sakhalin, Japan	Asia	Cupressaceae	ARBG	1978	1
<i>Juniperus conferta</i>	Sakhalin, Japan	Asia	Cupressaceae	ARBG	1980	Duncan & Davies 1
<i>Juniperus conferta</i>	Sakhalin, Japan	Asia	Cupressaceae	ARBG	1991	Botannix Garden 1
<i>Juniperus conferta</i>	Sakhalin, Japan	Asia	Cupressaceae	MANUKAU		7
<i>Juniperus conferta</i> 'Blue Pacific'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Cedar Lodge 1
<i>Juniperus conferta</i> 'Emerald Ruffles'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge 1
<i>Juniperus horizontalis</i> 'Bar Harbour'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus horizontalis</i> 'Bar Harbour'	Horticultural	Horticultural	Cupressaceae	ARBG	1992	Palmers 1
<i>Juniperus horizontalis</i> 'Blue Chip'	Horticultural	Horticultural	Cupressaceae	ARBG	1984	Duncan & Davies 1
<i>Juniperus horizontalis</i> 'Douglasii'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus horizontalis</i> 'Emerald Spreader'	Horticultural	Horticultural	Cupressaceae	ARBG	1989	Cedar Lodge 1
<i>Juniperus horizontalis</i> 'Hughes'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	2
<i>Juniperus horizontalis</i> 'Marcellus'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus horizontalis</i> 'Plumosa'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Cedar Lodge 1
<i>Juniperus horizontalis</i> 'Turquoise Spreader'	Horticultural	Horticultural	Cupressaceae	ARBG	1980	Duncan & Davies 1
<i>Juniperus horizontalis</i> 'Turquoise Spreader'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Cedar Lodge 1
<i>Juniperus horizontalis</i> 'Wiltonii'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1

<i>Juniperus pingii</i> 'Pygmaea' +A1006	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus procumbens</i>	Africa	Africa	Cupressaceae	ARBG	1998	Cedar Lodge 1
<i>Juniperus procumbens</i> 'Nana'	Horticultural	Horticultural	Cupressaceae	ARBG	1988	Cedar Lodge 1
<i>Juniperus procumbens</i> 'Nana'	Horticultural	Horticultural	Cupressaceae	ARBG	1992	Wholesale Tree Co. 1
<i>Juniperus procumbens</i> 'Nana'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus recurva</i>	China, Burma	Asia	Cupressaceae	UNITEC		1
<i>Juniperus recurva</i> var. <i>cozii</i>	China, Burma	Asia	Cupressaceae	ARBG	1988	Cedar Lodge 1
<i>Juniperus recurva</i> var. <i>cozii</i>	China, Burma	Asia	Cupressaceae	GOVT	1939	1
<i>Juniperus rigida</i>	Korea, Manchuria	Asia	Cupressaceae	ARBG	1981	Cedar Lodge 1
<i>Juniperus sabina</i> 'Broadmoor'	Horticultural	Horticultural	Cupressaceae	ARBG	1985	1
<i>Juniperus sabina</i> var. <i>tamariscifolia</i>	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus sargentii</i> 'Glaucia'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	1
<i>Juniperus scopularum</i>	Arizona to Texas	North America	Cupressaceae	ARBG	1984	1
<i>Juniperus scopularum</i>	Arizona to Texas	North America	Cupressaceae	STREET		1
<i>Juniperus scopularum</i> 'Blue Heaven'	Horticultural	Horticultural	Cupressaceae	CENTENNIAL		1
<i>Juniperus scopularum</i> 'Colorado Green'	Horticultural	Horticultural	Cupressaceae	ARBG	1985	1
<i>Juniperus scopularum</i> 'Grey Gleam'	Horticultural	Horticultural	Cupressaceae	ARBG	1985	Cedar Lodge 1
<i>Juniperus scopularum</i> 'Moffettii'	Horticultural	Horticultural	Cupressaceae	ARBG	1984	1
<i>Juniperus scopularum</i> 'Moonglow'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge 1
<i>Juniperus scopularum</i> 'Skyrocket'	Horticultural	Horticultural	Cupressaceae	ARBG	1982	1
<i>Juniperus squamata</i>	Afghanistan to Taiwan	Asia	Cupressaceae	ARBG	1988	Cedar Lodge 1
<i>Juniperus squamata</i> 'Blue Carpet'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Wholesale Tree Co. 1
<i>Juniperus squamata</i> 'Blue Carpet' A1001	Horticultural	Horticultural	Cupressaceae	ARBG	1984	1
<i>Juniperus squamata</i> 'Holger'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Lyndale Nurseries 1
<i>Juniperus squamata</i> 'Holger'	Horticultural	Horticultural	Cupressaceae	ARBG	1994	Cedar Lodge 1
<i>Juniperus squamata</i> 'Meyeri'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	Cedar Lodge 3
<i>Juniperus squamata</i> 'Meyeri'	Horticultural	Horticultural	Cupressaceae	WAITAKETE1		1
<i>Juniperus squamata</i> 'Wilsoni'	Horticultural	Horticultural	Cupressaceae	MANUKAU		59
<i>Juniperus taxifolia</i> var. <i>lutchuensis</i>	Afghanistan to Taiwan	Asia	Cupressaceae	ARBG	1980	Duncan & Davies 1
<i>Juniperus taxifolia</i> var. <i>lutchuensis</i>	Afghanistan to Taiwan	Asia	Cupressaceae	ARBG	1982	1
<i>Juniperus taxifolia</i> var. <i>lutchuensis</i>	Afghanistan to Taiwan	Asia	Cupressaceae	ARBG	1987	1
<i>Juniperus thurifera</i> (<i>hispanica</i>)	Spain/French Alps	Europe, Africa	Cupressaceae	ARBG	1998	Cedar Lodge 1
<i>Juniperus virginiana</i>	N America	North America	Cupressaceae	DOMAIN	1938	Watters 1

<i>Juniperus virginiana</i> 'Glauc'	Horticultural	Horticultural	Cupressaceae	ARBG	1988	Cedar Lodge	1
<i>Juniperus wallichiana</i> (pseudosabina)	Himalaya	Asia	Cupressaceae	ARBG	1998	Cedar Lodge	1
<i>Juniperus x davaurica</i> 'Expansa'	Horticultural	Horticultural	Cupressaceae	ARBG	1989	Cedar Lodge	1
<i>Juniperus x davaurica</i> 'Expansa'	Horticultural	Horticultural	Cupressaceae	ARBG	1993	Cedar Lodge	1
<i>Juniperus x media</i> 'Gold Coast'	Horticultural	Horticultural	Cupressaceae	ARBG	1980		1
<i>Juniperus x media</i> 'Plumosa Aurea'	Horticultural	Horticultural	Cupressaceae	ARBG	1981	Cedar Lodge	1
<i>Libocedrus bidwillii</i>	New Zealand	Australasia	Cupressaceae	ARBG	1994	Cedar Lodge	1
<i>Libocedrus bidwillii</i>	New Zealand	Australasia	Cupressaceae	ARBG	1994	J.C. Moore, Peel	1
<i>Libocedrus bidwillii</i>	New Zealand	Australasia	Cupressaceae	UNI			1
<i>Libocedrus bidwillii</i>	New Zealand	Australasia	Cupressaceae	ORATIA	1997		1
<i>Libocedrus bidwillii</i>	New Zealand	Australasia	Cupressaceae	STREET			1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	STREET			3
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	ARBG	1978		2
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	ARBG	1982		1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	EDED	1979 +		1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	ORATIA	1985	Waitakere Ranges	1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	UNI			5
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	DOMAIN			1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	CENTENNIAL			1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	WAITAKERE			1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	HIGHWIC			1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	CEMETERY			1
<i>Libocedrus plumosa</i>	New Zealand	Australasia	Cupressaceae	NOTABLE			1
<i>Thuja occidentalis</i>	N America	North America	Cupressaceae	UNI			2
<i>Thuja occidentalis</i>	N America	North America	Cupressaceae	STREET			5
<i>Thuja plicata</i>	N America	North America	Cupressaceae	WINNI			1
<i>Thuja plicata</i>	N America	North America	Cupressaceae	MANUKAU			64
<i>Thuja plicata</i>	N America	North America	Cupressaceae	STREET			3
<i>Thuja plicata</i> 'Aurea'	Horticultural	Horticultural	Cupressaceae	MANUKAU			22
<i>Thujaopsis dolabrata</i>	Japan	Asia	Cupressaceae	STREET			2
<i>Widdringtonia schwarzii</i>	S Africa	Africa	Cupressaceae	DOMAIN			3
<i>Davidia involucrata</i>	Tibet	Asia	Davidiaceae	UNI			1
<i>Davidia involucrata</i>	Tibet	Asia	Davidiaceae	NOTABLE			1

<i>Elaeocarpus dentatus</i>	New Zealand	Australasia	Elaeocarpaceae	WAITAKERE			1
<i>Elaeocarpus dentatus</i>	New Zealand	Australasia	Elaeocarpaceae	CORNWALL			3
<i>Elaeocarpus dentatus</i>	New Zealand	Australasia	Elaeocarpaceae	UNI			1
<i>Elaeocarpus dentatus</i>	New Zealand	Australasia	Elaeocarpaceae	MANUKAU			2
<i>Elaeocarpus dentatus</i>	New Zealand	Australasia	Elaeocarpaceae	NOTABLE			1
<i>Elaeocarpus reticulatus</i>	Australia	Australasia	Elaeocarpaceae	ZOO			1
<i>Elaeocarpus reticulatus</i>	Australia	Australasia	Elaeocarpaceae	CORNWALL			1
<i>Elaeocarpus reticulatus</i>	Australia	Australasia	Elaeocarpaceae	CENTENNIAL			1
<i>Arbutus unedo</i>	Mediterranean	Europe	Ericaceae	CORNWALL			6
<i>Arbutus unedo</i>	Mediterranean	Europe	Ericaceae	MANUKAU			19
<i>Arbutus unedo</i>	Mediterranean	Europe	Ericaceae	UNI			1
<i>Arbutus unedo</i>	Mediterranean	Europe	Ericaceae	STREET			4
<i>Oxydendrum arboreum</i>	North America	North America	Ericaceae	UNI			1
<i>Rhododendron arboreum</i>	China	Asia	Ericaceae	UNITEC	Mature		1
<i>Rhododendron arboreum</i>	China	Asia	Ericaceae	DOMAIN			1
<i>Rhododendron arboreum</i>	China	Asia	Ericaceae	CORNWALL			26
<i>Rhododendron arboreum</i>	China	Asia	Ericaceae	MT WELL			1
<i>Baloghia lucida</i>	Norfolk Islands	Australasia	Euphorbiaceae	ST KENTS			7
<i>Acacia baileyana</i>	Australia	Australasia	Fabaceae	ALBERT			35
<i>Acacia baileyana</i>	Australia	Australasia	Fabaceae	MANUKAU			1
<i>Acacia baileyana</i>	Australia	Australasia	Fabaceae	UNI			2
<i>Acacia cardiophylla</i>	Australia	Australasia	Fabaceae	MANUKAU			8
<i>Acacia dealbata</i>	Australia	Australasia	Fabaceae	MANUKAU			2
<i>Acacia fimbriata</i>	Australia	Australasia	Fabaceae	MANUKAU			137
<i>Acacia florabunda</i>	Australia	Australasia	Fabaceae	MANUKAU			33
<i>Acacia longifolia</i>	Australia	Australasia	Fabaceae	MANUKAU			1
<i>Acacia longifolia</i>	Australia	Australasia	Fabaceae	DOMAIN			1
<i>Acacia longifolia</i>	Australia	Australasia	Fabaceae	CENTENNIAL			1
<i>Acacia longifolia</i>	Australia	Australasia	Fabaceae	CEMETERY			2
<i>Acacia longifolia</i>	Australia	Australasia	Fabaceae	MANUKAU			1
<i>Acacia melanoxylon</i>	Australia	Australasia	Fabaceae	WESTERN			1
<i>Acacia melanoxylon</i>	Australia	Australasia	Fabaceae	DOMAIN			1
<i>Acacia melanoxylon</i>	Australia	Australasia	Fabaceae	VICTORIA			1

<i>Acacia melanoxylon</i>	Australia	Australasia	Fabaceae	CELIA			1
<i>Acacia melanoxylon</i>	Australia	Australasia	Fabaceae	WAITAKERE			1
<i>Acacia melanoxylon</i>	Australia	Australasia	Fabaceae	WINNI			8
<i>Acacia pravissima</i>	Australia	Australasia	Fabaceae	MANUKAU			1
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	MARC	1987	Trade	3
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	ARBG	1983	Chiltern Seeds	1
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	ARBG	1990		1
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	DOMAIN	1938	Watters	163
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	MANUKAU			83
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	STREET			2
<i>Albizia julibrissin</i>	Iran to Japan	Asia	Fabaceae	CORNWALL			1
<i>Albizia julibrissin</i> 'Rosea Oriental Dawn'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Dene's Garden Way	1
<i>Albizia julibrissin</i> 'Red Silk'	Horticultural	Horticultural	Fabaceae	ARBG	1996	Mike	1
<i>Albizia julibrissin</i> 'Rosea'	Horticultural	Horticultural	Fabaceae	ARBG	1990	Botannix Garden	20
<i>Albizia lophantha</i>	Australia	Australasia	Fabaceae	MANUKAU			1
<i>Albizia lophantha</i>	Australia	Australasia	Fabaceae	STREET			1
<i>Bauhinia forficata</i>	Brazil	South America	Fabaceae	ARBG	1994	Eion Scarrow	1
<i>Bauhinia galpinii</i> (punctata)	SAfrica	Africa	Fabaceae	ARBG	1983		1
<i>Bauhinia galpinii</i> (punctata)	SAfrica	Africa	Fabaceae	ARBG	1985		1
<i>Bauhinia galpinii</i> (punctata)	SAfrica	Africa	Fabaceae	OPANUKU			1
<i>Bauhinia natalensis</i>	Africa	Africa	Fabaceae	ARBG	1997	Colin Bradshaw	1
<i>Bauhinia purpurea</i> (triandra)	India, Burma, China	Asia	Fabaceae	MARC	1987	Trade	1
<i>Bauhinia purpurea</i> (triandra)	India, Burma, China	Asia	Fabaceae	DOMAIN			1
<i>Bauhinia purpurea</i> (triandra)	India, Burma, China	Asia	Fabaceae	CENTENNIAL			1
<i>Bauhinia purpurea</i> (triandra)	India, Burma, China	Asia	Fabaceae	OPANUKU			1
<i>Bauhinia scandens</i>	Cuba	North America	Fabaceae	ARBG	1997	Sue Davidson	1
<i>Bauhinia variegata</i>	East Asia	Asia	Fabaceae	ARBG	1995	Dr. Max Goodey	1
<i>Bauhinia variegata</i>	East Asia	Asia	Fabaceae	ARBG	1998	Roger Hunters	1
<i>Caesalpinia ferrea</i>	Brazil	South America	Fabaceae	ZOO			1
<i>Caesalpinia gillesii</i>	Argentina	South America	Fabaceae	ARBG	1991	Chiltern Seeds	1
<i>Caesalpinia gillesii</i>	Argentina	South America	Fabaceae	ARBG	1993	Dene's Garden Way	1
<i>Caesalpinia hawaiiensis</i>	Hawaii	North America	Fabaceae	ARBG	1996	Peter de Lange	1
<i>Calliandra</i> 'Blushing Pixie'	Horticultural	Horticultural	Fabaceae	ARBG	1993	Dene's Garden Way	1

<i>Calliandra</i> 'Blushing Pixie'	Horticultural	Horticultural	Fabaceae	EDEN	1996		1
<i>Calliandra</i> 'Stuart Dower'	Horticultural	Horticultural	Fabaceae	MARC	1973	USA	1
<i>Calliandra tweedii</i>	Brazil	South America	Fabaceae	ARBG	1978		14
<i>Cassia corymbosa</i> 'John Ball'	Horticultural	Horticultural	Fabaceae	STREET			1
<i>Cassia didymobotrya</i>	Tropical Africa	Africa	Fabaceae	MARC	1989	Trade	1
<i>Cassia didymobotrya</i>	Tropical Africa	Africa	Fabaceae	UNI			1
<i>Cassia fistula</i>	Tropical Asia	Asia	Fabaceae	ARBG	1991	J.L. Hudson	1
<i>Cassia leptophylla</i>	Brazil	South America	Fabaceae	DOMAIN			1
<i>Cassia multijuga</i>	Guiana	South America	Fabaceae	STREET			1
<i>Cassia tomentosa</i>	Asia	Asia	Fabaceae	MARC	1994	Trade	1
<i>Castanea dentata</i>	E USA	North America	Fabaceae	STREET			1
<i>Castanospermum australe</i>	Australia	Australasia	Fabaceae	HIGHWIC			4
<i>Castanospermum australe</i>	Australia	Australasia	Fabaceae	CORNWALL			1
<i>Castanospermum australe</i>	Australia	Australasia	Fabaceae	SHORE			1
<i>Castanospermum australe</i>	Australia	Australasia	Fabaceae	NOTABLE			1
<i>Cercis canadensis</i>	USA	North America	Fabaceae	ARBG	1997	Top Trees Nursery	1
<i>Cercis canadensis</i> 'Forest Pansy'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Growing	1
<i>Cercis chinensis</i> 'Avondale'	Horticultural	Horticultural	Fabaceae	ARBG	1975	Palmer's	1
<i>Cercis chinensis</i> 'Avondale'	Horticultural	Horticultural	Fabaceae	ARBG	1978		1
<i>Cercis occidentalis</i>	USA	North America	Fabaceae	ARBG	1991	Rainbow Seeds	1
<i>Cercis racemosa</i>	China	Asia	Fabaceae	ARBG	1994	Duncan & Davies	1
<i>Cercis siliquastrum</i>	Europe	Europe	Fabaceae	ARBG	1985	Pettit's Nurseries	1
<i>Cercis siliquastrum</i>	Europe	Europe	Fabaceae	ZOO			1
<i>Cercis siliquastrum</i>	Europe	Europe	Fabaceae	HIGHWIC			1
<i>Cercis siliquastrum</i>	Europe	Europe	Fabaceae	MT WELL			1
<i>Cercis siliquastrum</i>	Europe	Europe	Fabaceae	WINNI			5
<i>Cercis siliquastrum</i>	Europe	Europe	Fabaceae	STREET			1
<i>Cercis siliquastrum</i> 'Avondale'	Horticultural	Horticultural	Fabaceae	UNI			1
<i>Cercis yunnanensis</i>	Europe	Europe	Fabaceae	ARBG	1994	Glyn Church	1
<i>Enterolobium contortisiliquum</i>	Argentina	South America	Fabaceae	ST KENTS			2
<i>Erythrina americana</i>	Mexico	South America	Fabaceae	ARBG	1994	Dr. Max Goodey	1
<i>Erythrina caffra</i>	SAfrica	Africa	Fabaceae	ARBG	1987		1
<i>Erythrina caffra</i>	SAfrica	Africa	Fabaceae	ARBG	1994	Eion Scarrow	1

<i>Erythrina caffra</i>	SAfrica	Africa	Fabaceae	ARBG	1996	Tony Palmer	1
<i>Erythrina caffra</i>	SAfrica	Africa	Fabaceae	CENTENNIAL			1
<i>Erythrina caffra</i>	SAfrica	Africa	Fabaceae	WILSON			1
<i>Erythrina caffra</i>	SAfrica	Africa	Fabaceae	UNI			1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	MARC	1969		1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	ARBG	1976	Pettit's Nurseries	1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	ARBG	1978		1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	UNITEC	Post M		1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	ARBG	1997	Katherine Muller-	1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	OPANUKU			1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	EDEN	1989 +		2
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	STREET			13
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	MANUKAU			2
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	WAITAKERE			1
<i>Erythrina crista-galli</i>	Brazil	South America	Fabaceae	NOTABLE			1
<i>Erythrina falcata</i>	Brazil	South America	Fabaceae	ARBG	1997	Dr. Max Goodey	1
<i>Erythrina humeana</i>	Brazil	South America	Fabaceae	ARBG	1991	The National	1
<i>Erythrina humeana</i>	Brazil	South America	Fabaceae	ARBG	1995	Joy Plants	1
<i>Erythrina humeana</i>	Brazil	South America	Fabaceae	ARBG	1995	Dr. Max Goodey	1
<i>Erythrina indica</i>	Phillipines, Indones	Asia	Fabaceae	NOTABLE			1
<i>Erythrina indica (variegata)</i>	Phillipines, Indones	Asia	Fabaceae	ALBERT			6
<i>Erythrina indica (variegata)</i>	Phillipines, Indones	Asia	Fabaceae	STREET			1
<i>Erythrina latissima</i>	Abessinia	Asia	Fabaceae	ARBG	1994	Dr. Max Goodey	1
<i>Erythrina livingstoniana</i>	Tropical Africa	Africa	Fabaceae	ARBG	1994	Silverhill Seeds	1
<i>Erythrina livingstoniana</i>	Tropical Africa	Africa	Fabaceae	ARBG	1997	Dr. Max Goodey	1
<i>Erythrina lysistemon</i>	Transvaal	Africa	Fabaceae	ARBG	1994	Dr. Max Goodey	1
<i>Erythrina lysistemon</i>	Transvaal	Africa	Fabaceae	ARBG	1997	Katherine Muller-	1
<i>Erythrina lysistemon</i>	Transvaal	Africa	Fabaceae	DOMAIN			1
<i>Erythrina speciosa</i>	Brazil	South America	Fabaceae	ALBERT			1
<i>Erythrina speciosa</i>	Brazil	South America	Fabaceae	OPANUKU			1
<i>Erythrina speciosa</i>	Brazil	South America	Fabaceae	STREET			1
<i>Erythrina x bidwillii</i>	Horticultural	Horticultural	Fabaceae	ARBG	1986		1
<i>Erythrina x bidwillii</i>	Horticultural	Horticultural	Fabaceae	ARBG	1995	D. Gross	5

<i>Erythrina x sykesii</i>	Australian hybrid	Australasia	Fabaceae	UNITEC	Mature		4
<i>Erythrina x sykesii</i>	Australian hybrid	Australasia	Fabaceae	UNITEC			1
<i>Erythrina x sykesii</i>	Australian hybrid	Australasia	Fabaceae	DOMAIN			7
<i>Erythrina x sykesii</i>	Australian hybrid	Australasia	Fabaceae	CORNWALL			6
<i>Erythrina x sykesii</i>	Australian hybrid	Australasia	Fabaceae	UNI			14
<i>Erythrina x sykesii</i>	Australian hybrid	Australasia	Fabaceae	SHORE			1
<i>Erythrina zeyheri</i>	SAfrica	Africa	Fabaceae	ARBG	1997	Silverhill Seeds	1
<i>Gleditsia japonica</i>	Japan, China	Asia	Fabaceae	ARBG	1995	Top Trees Nursery	1
<i>Gleditsia sinensis</i>	China	Asia	Fabaceae	ARBG	1995	Top Trees Nursery	1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	MARC	1984		1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	ALBERT			1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	EDEN	1994 +		1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	WILSON			1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	HAYMAN			1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	DOMAIN			1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	CAMBRIA			1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	WINNI			122
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	MANUKAU			1
<i>Gleditsia triacanthos</i>	USA	North America	Fabaceae	UNI			2
<i>Gleditsia triacanthos f. inermis</i>	USA	North America	Fabaceae	ALBERT			41
<i>Gleditsia triacanthos f. inermis</i>	USA	North America	Fabaceae	STREET			1
<i>Gleditsia triacanthos f. inermis</i> 'Emerald Cascade'	Horticultural	Horticultural	Fabaceae	ARBG	1989	Botannix Garden	1
<i>Gleditsia triacanthos f. inermis</i> 'Moraine'	Horticultural	Horticultural	Fabaceae	ARBG	1978	Palmers	1
<i>Gleditsia triacanthos f. inermis</i> 'Ruby Lace'	Horticultural	Horticultural	Fabaceae	ARBG	1978	Palmers	1
<i>Gleditsia triacanthos f. inermis</i> 'Ruby Lace'	Horticultural	Horticultural	Fabaceae	EDEN	1996		1
<i>Gleditsia triacanthos f. inermis</i> 'Shademaster'	Horticultural	Horticultural	Fabaceae	ARBG	1984	Duncan & Davies	1
<i>Gleditsia triacanthos f. inermis</i> 'Shademaster'	Horticultural	Horticultural	Fabaceae	UNI			1
<i>Gleditsia triacanthos f. inermis</i> 'Skyline'	Horticultural	Horticultural	Fabaceae	ARBG	1984	Duncan & Davies	4
<i>Gleditsia triacanthos f. inermis</i> 'Skyline'	Horticultural	Horticultural	Fabaceae	ARBG	1991	Rainbow Park	1
<i>Gleditsia triacanthos f. inermis</i> 'Skyline'	Horticultural	Horticultural	Fabaceae	UNI			1
<i>Gleditsia triacanthos f. inermis</i> 'Skyline'	Horticultural	Horticultural	Fabaceae	STREET			2
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	EDEN	1996		1
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	ARBG	1978	Beaumonts	2

<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	ARBG	1981		1
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	ARBG	1983		1
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	ARBG	1985	Pettit's Nurseries	1
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	ARBG	1986		1
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	ARBG	1991	Botannix Garden	1
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	UNI			2
<i>Gleditsia triacanthos f. inermis</i> 'Sunburst'	Horticultural	Horticultural	Fabaceae	STREET			1
<i>Gleditsia triacanthos f. inermis</i> 'Limelight'	Horticultural	Horticultural	Fabaceae	ARBG	1996	Allenton Nurseries	1
<i>Gymnocladus dioicus</i>	C & E North America	North America	Fabaceae	CENTENNIAL			1
<i>Racosperma melanoxylo</i>	Tasmania, Australia	Australasia	Fabaceae	ALBERT			1
<i>Robinia hispida</i>	NAmerica	North America	Fabaceae	ARBG	1991	Chiltern Seeds	3
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	UNITEC	Young		1
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	UNITEC	Semi M		1
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	GOVT	1949		18
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	CORNWALL			1
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	MT WELL			1
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	UNI			104
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	MANUKAU			46
<i>Robinia pseudoacacia</i>	USA	North America	Fabaceae	STREET			1
<i>Robinia pseudoacacia</i> 'Bessoniana'	Horticultural	Horticultural	Fabaceae	ARBG	1995	Top Trees Nursery	1
<i>Robinia pseudoacacia</i> 'Casque Rouge'	Horticultural	Horticultural	Fabaceae	STREET			1
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	ARBG	1977	Pettit's Garden	1
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	ARBG	1982		1
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	STREET			1
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	UNI			2
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	MANUKAU			1
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	ARBG	1988		1
<i>Robinia pseudoacacia</i> 'Frisia'	Horticultural	Horticultural	Fabaceae	ARBG	1997	Wholesale Tree Co.	1
<i>Robinia pseudoacacia</i> 'Lace Lady'	Horticultural	Horticultural	Fabaceae	ARBG	1991	Cunningham	3
<i>Robinia pseudoacacia</i> 'Rozyrnakiana'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Top Trees Nursery	29
<i>Robinia pseudoacacia</i> 'Umbraculifera'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Top Trees Nursery	5
<i>Robinia pseudoacacia</i> 'Unifoliola'	Horticultural	Horticultural	Fabaceae	ARBG	1995	Top Trees Nursery	1
<i>Robinia x ambigua</i> 'Decaisneana'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Wholesale Tree Co.	2

<i>Robinia x slavinii</i> 'Hilieri'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Top Trees Nursery	1
<i>Schizolobium parahyabum</i>	Brazil	South America	Fabaceae	ZOO			1
<i>Schizolobium parahyabum</i>	Brazil	South America	Fabaceae	UNI			1
<i>Sesbania marginata</i>	Tropical America	South America	Fabaceae	UNI			1
<i>Sophora chathamica</i>	Chatham Islands	Australasia	Fabaceae	ARBG	1996	Peter de Lange	1
<i>Sophora chrysophylla</i>	Polynesia	Australasia	Fabaceae	ARBG	1996	Peter de Lange	1
<i>Sophora japonica</i>	China, Korea	Asia	Fabaceae	EDEN	1997	Caves Trees Nurse:	1
<i>Sophora japonica</i>	China, Korea	Asia	Fabaceae	DOMAIN			1
<i>Sophora japonica</i>	China, Korea	Asia	Fabaceae	UNI			1
<i>Sophora japonica</i> 'Pendula'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Wholesale Tree Co.	1
<i>Sophora japonica</i> 'Pendula'	Horticultural	Horticultural	Fabaceae	EDEN	1997	Caves Trees Nurse:	2
<i>Sophora longicarinata</i>	New Zealand	Australasia	Fabaceae	ARBG	1993	Keith & Copper	1
<i>Sophora lucens</i>			Fabaceae	UNI			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	MARC	1994	Sth America	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1990		2
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1992	Platts	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1993	Keith & Copper	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1993	Oratia Native Pl.	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1994	Jack Hobbs	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1994	Laurie Metcalfe	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1996	Brent Torrens	3
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1997	Brent Torrens	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1997	Joy Plants	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1998	Brent Torrens	2
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ARBG	1995	ARBG	1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	GOVH	1989		2
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	UNITEC	Mature		2
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ALBERT			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	EDEN	1994		1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	CHELSEA			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	DOMAIN			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ALBERTON			71
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	CORNWALL			1

<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	MT WELL			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	WINNI			438
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	MANUKAU			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	ORATIA	1900	Waitakere Ranges	10
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	UNI			119
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	STREET			1
<i>Sophora microphylla</i>	New Zealand	Australasia	Fabaceae	NOTABLE			1
<i>Sophora microphylla</i> (weeping form)	New Zealand	Australasia	Fabaceae	ARBG	1993	Keith & Copper	1
<i>Sophora microphylla</i> 'Dragons Gold'	Horticultural	Horticultural	Fabaceae	MARC	1989	Platts/Oratia	1
<i>Sophora microphylla</i> 'Dragons Gold'	Horticultural	Horticultural	Fabaceae	ARBG	1997	Naturally Native	1
<i>Sophora microphylla</i> 'Dragons Gold'	Horticultural	Horticultural	Fabaceae	ORATIA	1992		1
<i>Sophora microphylla</i> 'Dragons Gold'	Horticultural	Horticultural	Fabaceae	EDEN	1998	Naturally Native	1
<i>Sophora microphylla</i> 'Dragons Gold'	Horticultural	Horticultural	Fabaceae	MANUKAU			1
<i>Sophora microphylla</i> 'Earlygold'	Horticultural	Horticultural	Fabaceae	MARC	1986	Levin R.S.	1
<i>Sophora microphylla</i> 'Earlygold'	Horticultural	Horticultural	Fabaceae	ARBG	1992	Duncan & Davies	1
<i>Sophora microphylla</i> 'Goldies Mantle'	Horticultural	Horticultural	Fabaceae	MARC	1986	Levin R.S.	1
<i>Sophora microphylla</i> 'Goldilocks'	Horticultural	Horticultural	Fabaceae	MARC		Levin R.S.	1
<i>Sophora microphylla</i> 'Goldilocks'	Horticultural	Horticultural	Fabaceae	ARBG	1992	Duncan & Davies	1
<i>Sophora microphylla</i> 'Te Atatu Gold'	Horticultural	Horticultural	Fabaceae	ARBG	1994	Dawn Rothay	1
<i>Sophora microphylla</i> 'Titi Island'	Horticultural	Horticultural	Fabaceae	ARBG	1997	Nikau Gardens	1
<i>Sophora microphylla</i> 'Twister'	Horticultural	Horticultural	Fabaceae	ARBG	1997	Nikau Gardens	1
<i>Sophora microphylla</i> f. <i>longicarinata</i> (treadwellii)	New Zealand	Australasia	Fabaceae	CENTENNIAL			1
<i>Sophora microphylla</i> f. <i>longicarinata</i> (treadwellii)	New Zealand	Australasia	Fabaceae	ORATIA	1996	Takaka	1
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ARBG	1990	Parva Plants	1
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ARBG	1992	Platts	1
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ARBG	1994	Platts	3
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ARBG	1997	Jack Hobbs	1
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ARBG	1997	E.H. & E.L.G1262	2
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ARBG	1998	Brent Torrens	1
<i>Sophora microphylla</i> var. <i>fulvida</i>	New Zealand	Australasia	Fabaceae	ORATIA	1995	Anawhata	1
<i>Sophora mollis</i>	Himilaya	Asia	Fabaceae	ARBG	1992	Joy Plants	1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	MARC	1989	Oratia Native Pl.	1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	ARBG	1991	Platts	1

<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	ARBG	1992	Platts	1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	ARBG	1994	J.C. Moore	1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	ARBG	1996	Keith & Copper	1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	ARBG	1997	Naturally Native	1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	STREET			1
<i>Sophora prostrata</i>	New Zealand	Australasia	Fabaceae	ORATIA	1996	Kaikoura	1
<i>Sophora secundiflora</i>	N America	North America	Fabaceae	ARBG	1995	Mesa Garden	1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	MARC	1969		1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ARBG	1978		1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ARBG	1990	Dave Jenkins	1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ARBG	1990	Auckland G1278	1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ARBG	1992	Hackfalls	1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ARBG	1995	George Rainey	1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ARBG	1997	Dave Jenkins	1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	HIGHWIC	1953-78		1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	HIGHWIC	1900-53		464
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	MANUKAU			1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	DEVONPORT			1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	CENTENNIAL			9
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	CORNWALL			1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ALBERT			2
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	UNI			119
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	STREET			5
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	SHORE			1
<i>Sophora tetraptera</i>	New Zealand	Australasia	Fabaceae	ORATIA	1996		1
<i>Sophora tetraptera</i> 'Gnome'	Horticultural	Horticultural	Fabaceae	ORATIA	1996	Lord Howe Island	1
<i>Tipuana tipu</i>	Bolivia/Brazil/Argen	South America	Fabaceae	WESTERN			1
<i>Tipuana tipu</i>	Bolivia/Brazil/Argen	South America	Fabaceae	UNI			1
<i>Tipuana tipu</i>	Bolivia/Brazil/Argen	South America	Fabaceae	STREET			24
<i>Virgilia capensis</i>	Sfrica	Africa	Fabaceae	STREET			14
<i>Virgilia capensis</i> 'Keurboom'	Horticultural	Horticultural	Fabaceae	MANUKAU			1
<i>Virgilia divaricata</i>	S Africa	Africa	Fabaceae	ALBERT			31
<i>Virgilia divaricata</i>	S Africa	Africa	Fabaceae	MANUKAU			1

<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	ARBG	1989	Palmers	1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	RICHMOND			1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	STREET			1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	VICTORIA			6
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	CORNWALL			1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	MT WELL			1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	WINNI			1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	SHORE			1
<i>Castanea sativa</i>	Asia minor, Europe	Europe, Asia, Afri	Fagaceae	NOTABLE			1
<i>Castanopsis cuspidata</i> (<i>Quercus cuspidata</i>)	China, Korea	Asia	Fagaceae	ARBG	1997	Top Trees Nursery	1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	MARC	1964	?	1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	GOVH	1949		1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	UNITEC	Young		1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	EDEN	1989 +		1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	RICHMOND			1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	HAYMAN			1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	CORNWALL			1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	MT WELL			1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	WINNI			1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	UNI			5
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	STREET			12
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	MANUKAU			2
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	SHORE			1
<i>Fagus sylvatica</i>	Central Europe	Europe	Fagaceae	NOTABLE			1
<i>Fagus sylvatica</i> 'Cockleshell'	Horticultural	Horticultural	Fagaceae	ARBG	1992	P. Cave	1
<i>Fagus sylvatica</i> 'Dawyc Purple'	Horticultural	Horticultural	Fagaceae	EDEN	1998	Caves Trees Nurse:	1
<i>Fagus sylvatica</i> 'Riversii' ('Purpurea Major')	Horticultural	Horticultural	Fagaceae	ARBG	1986		1
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	ARBG	1994	Eion Scarrow	1
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	HIGHWIC	1953-78		1
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	CENTENNIAL			4
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	CORNWALL			7
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	UNI			8
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	STREET			1

<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	SHORE			1
<i>Fagus sylvatica</i> f. <i>purpurea</i>	Central Europe	Europe	Fagaceae	NOTABLE			1
<i>Lithocarpus edulis</i>	Japan	Asia	Fagaceae	CENTENNIAL			1
<i>Lithocarpus edulis</i>	Japan	Asia	Fagaceae	NOTABLE			1
<i>Nothofagus antarctica</i>	Chile	South America	Fagaceae	ARBG	1996	P. Cave	1
<i>Nothofagus dombeyi</i>	Chile	South America	Fagaceae	ARBG	1996	Graham F. Smith	1
<i>Nothofagus fusca</i>	New Zealand	Australasia	Fagaceae	ARBG	1994	A.M. & M.L.	1
<i>Nothofagus fusca</i>	New Zealand	Australasia	Fagaceae	ORATIA	1997		1
<i>Nothofagus fusca</i>	New Zealand	Australasia	Fagaceae	STREET			1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	ARBG	1979		1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	EDEN	1979 +		1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	ORATIA	1985		1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	DOMAIN			3
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	UNI			1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	MANUKAU			1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	STREET			1
<i>Nothofagus menziesii</i>	New Zealand	Australasia	Fagaceae	NOTABLE			1
<i>Nothofagus moorei</i>	Australia	Australasia	Fagaceae	ARBG	1997	Stewart	1
<i>Nothofagus moorei</i>	Australia	Australasia	Fagaceae	UNI			1
<i>Nothofagus obliqua</i>	Chile	South America	Fagaceae	ARBG	1995	Top Trees Nursery	1
<i>Nothofagus obliqua</i>	Chile	South America	Fagaceae	ARBG	1996	Graham F. Smith	1
<i>Nothofagus solandri</i>	NZ	Australasia	Fagaceae	NOTABLE			1
<i>Nothofagus solandri</i> var. <i>cliffortioides</i>	NZ	Australasia	Fagaceae	ARBG	1994	J.C. Moore	1
<i>Nothofagus solandri</i> var. <i>cliffortioides</i>	NZ	Australasia	Fagaceae	ORATIA	1997		1
<i>Nothofagus solandri</i> var. <i>solandri</i>	NZ	Australasia	Fagaceae	ORATIA	1997		1
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	MARC	1949		1
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	ARBG	1997	S Benham	1
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	DOMAIN			1
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	UNI			1
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	CHELSEA			2
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	SHORE			1
<i>Nothofagus truncata</i>	NZ	Australasia	Fagaceae	ORATIA	1997	King Country	1
<i>Quercus acutissima</i>	Japan, China	Asia	Fagaceae	ARBG	1990	Auckland	1

<i>Quercus acutissima</i>	China	Asia	Fagaceae	ALBERT			2
<i>Quercus afares</i>	Algeria	Africa	Fagaceae	STREET			1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	ST KENTS			1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	ARBG	1991	Marivare Reserve	1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	ARBG	1994	Eastwoodhill	1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	DOMAIN			4
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	CORNWALL			1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	WINNI			1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	UNI			11
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	SHORE			1
<i>Quercus canariensis</i>	Spain, Africa	Europe, Africa	Fagaceae	NOTABLE			1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	UNITEC	Mature		1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	WESTERN			1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	DOMAIN			1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	CORNWALL			1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	WINNI			1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	STREET			1
<i>Quercus cerris</i>	Europe, Asia minor	Europe, Asia	Fagaceae	NOTABLE			1
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	ARBG	1992	Duncan & Davies	1
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	UNITEC	Young		1
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	DOMAIN			1
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	WAITAKERE			1
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	WINNI			5
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	MANUKAU			1
<i>Quercus coccinea</i>	E USA	North America	Fagaceae	UNI			1
<i>Quercus douglasii</i>	W N America	North America	Fagaceae	ARBG	1994	E. Cameron	1
<i>Quercus falcata</i>	SE USA	Europe	Fagaceae	NOTABLE			2
<i>Quercus frainetto</i>	Hungary	Europe	Fagaceae	WESTERN			1
<i>Quercus frainetto</i>	Hungary	Europe	Fagaceae	NOTABLE			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	ST KENTS			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	UNITEC	Mature		1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	WESTERN			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	ALBERT			1

<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	RICHMOND			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	CELIA			7
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	WILSON			5
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	MANUKAU			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	DOMAIN	1938	Watters	1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	CENTENNIAL			30
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	CORNWALL			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	MT WELL			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	VICTORIA			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	WINNI			3
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	STREET			6
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	SHORE			1
<i>Quercus ilex</i>	Mediterranean	Europe	Fagaceae	NOTABLE			1
<i>Quercus nigra</i>	SE USA	North America	Fagaceae	NOTABLE			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	MARC	1986	Trade	1
<i>Quercus palustris</i>	USA	North America	Fagaceae	ARBG	1981	Westney Rd.	1
<i>Quercus palustris</i>	USA	North America	Fagaceae	ARBG	1983		1
<i>Quercus palustris</i>	USA	North America	Fagaceae	ARBG			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	ARBG	1985		17
<i>Quercus palustris</i>	USA	North America	Fagaceae	UNITEC	1992	Eastwoodhill	1
<i>Quercus palustris</i>	USA	North America	Fagaceae	VICTORIA	Young		1
<i>Quercus palustris</i>	USA	North America	Fagaceae	WESTERN			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	HAYMAN			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	DOMAIN			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	DEVONPORT			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	CENTENNIAL			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	WAITAKERE			32
<i>Quercus palustris</i>	USA	North America	Fagaceae	CORNWALL			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	MT WELL			1
<i>Quercus palustris</i>	USA	North America	Fagaceae	WINNI			387
<i>Quercus palustris</i>	USA	North America	Fagaceae	MANUKAU			76
<i>Quercus palustris</i>	USA	North America	Fagaceae	STREET			26
<i>Quercus palustris</i>	USA	North America	Fagaceae	SHORE			1

<i>Quercus palustris</i>	USA	North America	Fagaceae	NOTABLE		178
<i>Quercus petraea</i>	Europe, Asia minor	Europe, Asia	Fagaceae	MANUKAU		1
<i>Quercus petraea</i>	Europe, Asia minor	Europe, Asia	Fagaceae	DOMAIN		1
<i>Quercus petraea</i>	Europe, Asia minor	Europe, Asia	Fagaceae	WAITAKERE		204
<i>Quercus petraea</i>	Europe, Asia minor	Europe, Asia	Fagaceae	CORNWALL		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	ST KENTS		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	GOVH	1909	1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	UNITEC	Young	7
<i>Quercus robur</i>	Europe	Europe	Fagaceae	UNITEC	Mature	27
<i>Quercus robur</i>	Europe	Europe	Fagaceae	WESTERN		23
<i>Quercus robur</i>	Europe	Europe	Fagaceae	ALBERT		11
<i>Quercus robur</i>	Europe	Europe	Fagaceae	WILSON		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	RICHMOND		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	DOMAIN		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	ALBERON		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	WAITAKERE		44
<i>Quercus robur</i>	Europe	Europe	Fagaceae	WAITAKERE		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	VICTORIA		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	ALBERTON		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	CELIA		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	DEVONPORT		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	CENTENNIAL		26
<i>Quercus robur</i>	Europe	Europe	Fagaceae	CORNWALL		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	MT WELL		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	WINNI		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	CEMETERY		41
<i>Quercus robur</i>	Europe	Europe	Fagaceae	UNI		80
<i>Quercus robur</i>	Europe	Europe	Fagaceae	STREET		125
<i>Quercus robur</i>	Europe	Europe	Fagaceae	SHORE		1
<i>Quercus robur</i>	Europe	Europe	Fagaceae	NOTABLE		1
<i>Quercus robur</i> 'Fenessii'	Horticultural	Horticultural	Fagaceae	ARBG	1992	Eastwoodhill
<i>Quercus rubra</i>	N America	North America	Fagaceae	ARBG	1994	Eastwoodhill
<i>Quercus rubra</i>	N America	North America	Fagaceae	WESTERN		1

<i>Quercus rubra</i>	N America	North America	Fagaceae	HAYMAN		1
<i>Quercus rubra</i>	N America	North America	Fagaceae	CENTENNIAL		5
<i>Quercus rubra</i>	N America	North America	Fagaceae	CORNWALL		8
<i>Quercus rubra</i>	N America	North America	Fagaceae	MANUKAU		1
<i>Quercus rubra</i>	N America	North America	Fagaceae	MT WELL		1
<i>Quercus rubra</i>	N America	North America	Fagaceae	UNI		13
<i>Quercus rubra</i>	N America	North America	Fagaceae	STREET		1
<i>Quercus rubra</i>	N America	North America	Fagaceae	NOTABLE		1
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	ARBG	1994	Colleen
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	ARBG	1995	Platta
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	DEVONPORT		3
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	ALBERT		1
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	DOMAIN		2
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	STREET		1
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	SHORE		1
<i>Quercus suber</i>	Europe, N Africa	Europe, N Africa	Fagaceae	NOTABLE		1
<i>Quercus variabilis</i>	China, Japan	Asia	Fagaceae	ARBG	1992	Eastwoodhill
<i>Quercus variabilis</i>	China, Japan	Asia	Fagaceae	ARBG	1997	Top Trees Nursery
<i>Quercus velutina</i>	E USA	North America	Fagaceae	ARBG	1990	Auckland
<i>Quercus virginiana</i>	USA	North America	Fagaceae	DEVONPORT		1
<i>Azara lanceolata</i>	Chile	South America	Flacourtiaceae	MANUKAU		21
<i>Azara microphylla</i>	Chile	South America	Flacourtiaceae	MANUKAU		1
<i>Azara microphylla</i>	Chile	South America	Flacourtiaceae	UNI		10
<i>Azara microphylla</i>	Chile	South America	Flacourtiaceae	STREET		1
<i>Idesia polycarpa</i>	Japan	Asia	Flacourtiaceae	HAYMAN		1
<i>Idesia polycarpa</i>	Japan	Asia	Flacourtiaceae	HIGHWIC	1978-95	12
<i>Idesia polycarpa</i>	Japan	Asia	Flacourtiaceae	CORNWALL		26
<i>Idesia polycarpa</i>	Japan	Asia	Flacourtiaceae	STREET		42
<i>Idesia polycarpa</i>	Japan	Asia	Flacourtiaceae	MANUKAU		1
<i>Idesia polycarpa</i>	Japan	Asia	Flacourtiaceae	SHORE		1
<i>Garrya elliptica</i>	W USA	North America	Garryaceae	UNI		1
<i>Garrya elliptica</i>	W USA	North America	Garryaceae	STREET		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	UNITEC	Young	1

<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	ALBERT		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	DOMAIN		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	HAYMAN		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	ZOO		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	ALBERTON		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	HIGHWIC	1953-78	1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	DEVONPORT		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	CENTENNIAL		26
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	CORNWALL		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	MT WELL		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	WINNI		71
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	STREET		6
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	UNI		87
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	MANUKAU		2
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	SHORE		1
<i>Ginkgo biloba</i>	China	Asia	Ginkgoaceae	NOTABLE		1
<i>Ginkgo biloba</i> 'Saratoga'	Horticultural	Horticultural	Ginkgoaceae	STREET		1
<i>Greya sutherlandii</i>	S Africa	Africa	Greyiaceae	ALBERT		2
<i>Liquidambar formosana</i>	China, Taiwan	Asia	Hamamelidaceae	UNITEC		2
<i>Liquidambar formosana</i>	China, Taiwan	Asia	Hamamelidaceae	STREET		8
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	UNITEC	Semi m	18
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	UNITEC	Mature	3
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	UNITEC		2
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	WESTERN		2
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	ALBERT		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	HAYMAN		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	DOMAIN		2
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	WILSON		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	DEVONPORT		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	VICTORIA		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	CENTENNIAL		3
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	WAITAKERE		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	MT WELL		1

<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	WINNI		10
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	UNI		169
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	STREET		3
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	SHORE		1
<i>Liquidambar styraciflua</i>	USA	North America	Hamamelidaceae	NOTABLE		1
<i>Parrotia persica</i>	Persia/Caucasus	Asia	Hamamelidaceae	DOMAIN		1
<i>Parrotia persica</i>	Persia/Caucasus	Asia	Hamamelidaceae	UNI		2
<i>Parrotia persica</i>	Persia/Caucasus	Asia	Hamamelidaceae	MANUKAU		1
<i>Parrotia persica</i>	Persia/Caucasus	Asia	Hamamelidaceae	STREET		1
<i>Aesculus californica</i>	California	North America	Hippocastanaceae	ARBG	1994 E. Cameron	1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	ARBG	1983	1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	UNITEC	Young	3
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	MANUKAU		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	EDEN	1994	5
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	STREET		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	HAYMAN		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	SPRINGS		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	WAITAKERE		50
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	CORNWALL		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	MT WELL		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	DOMAIN		2
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	SHORE		1
<i>Aesculus hippocastanum</i>	Greece, Bulgaria	Europe	Hippocastanaceae	NOTABLE		1
<i>Aesculus indica</i>	India	Asia	Hippocastanaceae	ARBG	1992 Hackfalls	1
<i>Aesculus pavia</i>	USA	North America	Hippocastanaceae	ARBG	1979	2
<i>Aesculus pavia</i>	USA	Asia	Hippocastanaceae	UNI		1
<i>Aesculus turbinata</i>	Japan	Asia	Hippocastanaceae	ARBG	1998 Top Trees Nursery	1
<i>Aesculus x carnea</i>	California	North America	Hippocastanaceae	ARBG	1983	6
<i>Aesculus x carnea</i>	California	North America	Hippocastanaceae	CORNWALL		1
<i>Aesculus x carnea</i>	California	North America	Hippocastanaceae	WINNI		1
<i>Aesculus x carnea</i>	California	North America	Hippocastanaceae	DOMAIN		9
<i>Aesculus x carnea</i>	California	North America	Hippocastanaceae	STREET		3
<i>Aesculus x carnea</i> (<i>hippocastanum</i> x <i>pavia</i>)	Horticultural	Horticultural	Hippocastanaceae	MANUKAU		1

<i>Aesculus x carnea</i> 'Briotii'	Horticultural	Horticultural	Hippocastanaceae	UNI			1
<i>Aesculus x neglecta</i> 'Erythroblastos'	Horticultural	Horticultural	Hippocastanaceae	ARBG	1995	Tikitere	1
<i>Carya illinoinensis</i>	S USA	North America	Juglandaceae	STREET			2
<i>Carya illinoinensis</i>	S USA	North America	Juglandaceae	SHORE			1
<i>Carya illinoinensis</i>	S USA	North America	Juglandaceae	NOTABLE			1
<i>Juglans ailantifolia</i>	Japan	Asia	Juglandaceae	STREET			1
<i>Juglans ailantifolia</i>	Japan	Asia	Juglandaceae	NOTABLE			1
<i>Juglans neo-tropica</i>	Peru	South America	Juglandaceae	UNI			1
<i>Juglans nigra</i>	E USA	North America	Juglandaceae	STREET			1
<i>Juglans nigra</i>	E USA	North America	Juglandaceae	WINNI			1
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	CENTENNIAL			1
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	WAITAKERE			1
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	CELIA			1
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	CORNWALL			1
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	WINNI			2
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	STREET			1
<i>Juglans regia</i>	SE Europe, Himalay	Europe, Asia	Juglandaceae	NOTABLE			36
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	ARBG	1986		1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	ARBG	1990	ARBG Nursery	1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	ARBG	1995	Khris Khaine	1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	ARBG	1995	Platts	1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	ARBG	1996	S.P. Benham	1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	EDEN	1998	Native birds	1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	DOMAIN			1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	CAMBRIA			2
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	MANUKAU			1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	CENTENNIAL			59
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	CORNWALL			1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	WINNI			7
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	STREET			1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	UNI			1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	ORATIA	1992	Waitakere Ranges	1
<i>Beilschmiedia taraira</i>	New Zealand	Australasia	Lauraceae	NOTABLE			1

<i>Beilschmiedia tawa</i>	New Zealand	Australasia	Lauraceae	MARC	1989	Oratia Native Pl.	1
<i>Beilschmiedia tawa</i>	New Zealand	Australasia	Lauraceae	ARBG	1995	Platts	1
<i>Beilschmiedia tawa</i>	New Zealand	Australasia	Lauraceae	ARBG	1997	Mitch Graham	1
<i>Beilschmiedia tawa</i>	New Zealand	Australasia	Lauraceae	DOMAIN			1
<i>Beilschmiedia tawa</i>	New Zealand	Australasia	Lauraceae	CHELSEA			1
<i>Beilschmiedia tawa</i>	New Zealand	Australasia	Lauraceae	ORATIA	1987	King Country	7
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	CORNWALL			3
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	WILSON			3
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	UNI			7
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	SHORE			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	ST KENTS			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	ARBG	1976		1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	ARBG	1997	Top Trees Nursery	2
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	GOVH	1939		2
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	GOVH	1919		2
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	UNITEC	Post M		4
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	WESTERN			2
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	ALBERT			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	RICHMOND			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	SPRINGS			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	ZOO			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	CELIA			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	DOMAIN			69
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	STREET			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	DEVONPORT			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	HIGHWIC			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	MT WELL			1
<i>Cinnamomum camphora</i>	S E Asia, Australia	Asia Australasia	Lauraceae	NOTABLE			1
<i>Cinnamomum laureirii</i>	S E Asia, Australia	Asia Australasia	Lauraceae	ARBG	1990	Auckland	1
<i>Cinnamomum loureirii</i>	S E Asia, Australia	Asia Australasia	Lauraceae	UNI			1
<i>Laurus canariensis</i>	Canary Islands	Africa	Lauraceae	NOTABLE			1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	ARBG	1993	Dunedin Botanic	2
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	GOVH	1909		1

<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	UNITEC	Mature	1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	ALBERT		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	RICHMOND		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	VICTORIA		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	ALBERTON		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	WILSON		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	DOMAIN		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	MT WELL		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	WINNI		3
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	UNI		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	STREET		1
<i>Laurus nobilis</i>	Asia minor	Asia	Lauraceae	SHORE		1
<i>Lindera angustifolia</i>	China	Asia	Lauraceae	ARBG	1997	Caves Tree Nurser,
<i>Lindera erythrocarpa</i>	Japan	Asia	Lauraceae	ARBG	1993	Caves Tree Nurser,
<i>Lindera obtusiloba</i>	Japan	Asia	Lauraceae	ARBG	1997	Caves Tree Nurser,
<i>Lindera strychnifolia</i>	Philippines	Asia	Lauraceae	ARBG	1997	Caves Tree Nurser,
<i>Neolitsea sericea (glauca)</i>	Japan, Korea, China	Asia	Lauraceae	ARBG	1991	Caves Tree Nurser,
<i>Persea americana</i>	Tropical America	South America	Lauraceae	GOVH	1959	2
<i>Persea americana</i>	Tropical America	South America	Lauraceae	CORNWALL		1
<i>Persea americana</i>	Tropical America	South America	Lauraceae	CEMETERY		2
<i>Persea americana</i>	Tropical America	South America	Lauraceae	MANUKAU		11
<i>Persea americana</i>	Tropical America	South America	Lauraceae	STREET		1
<i>Persea americana</i>	Tropical America	South America	Lauraceae	NOTABLE		1
<i>Persea americana</i> 'Haas'	Horticultural	Horticultural	Lauraceae	ARBG	1997	Wholesale Tree Co
<i>Persea thunbergii</i>	Korea, Japan, China	Asia	Lauraceae	ARBG	1993	Caves Tree Nurser,
<i>Sassafras officinale (albidum)</i>	USA	North America	Lauraceae	EDEN	1996	Caves Tree Nurser,
<i>Sassafras tzumu</i>	China	Asia	Lauraceae	ARBG	1997	Caves Tree Nurser,
<i>Aloe bainesii</i>	S Africa	Africa	Liliaceae	DOMAIN		1
<i>Aloe bainesii</i>	S Africa	Africa	Liliaceae	NOTABLE		1
<i>Buddleia</i> 'Honey Joy'	Horticultural	Horticultural	Loganiaceae	ARBG	1995	Joy Plants
<i>Buddleia</i> 'Lochinch' (davidii x fallowiana)	Horticultural	Horticultural	Loganiaceae	ARBG	1980	Duncan & Davies
<i>Buddleia</i> 'Lochinch' (davidii x fallowiana)	Horticultural	Horticultural	Loganiaceae	ARBG	1989	Botannix Garden
<i>Buddleia</i> 'Lochinch' (davidii x fallowiana)	Horticultural	Horticultural	Loganiaceae	ARBG	1991	Gordon Collier

<i>Buddleia alternifolia</i>	China	Asia	Loganiaceae	ARBG	1984	1
<i>Buddleia alternifolia</i>	China	Asia	Loganiaceae	ARBG	1997	Caves Tree Nurser,
<i>Buddleia alternifolia</i>	China	Asia	Loganiaceae	ARBG	1998	Caves Tree Nurser,
<i>Buddleia asiatica</i> 'Spring Promise'	Horticultural	Horticultural	Loganiaceae	ARBG	1993	Lyndale Nurseries
<i>Buddleia asiatica</i> 'Spring Promise'	Horticultural	Horticultural	Loganiaceae	ARBG	1994	Liddle Wonder
<i>Buddleia auriculata</i>	S Africa	Africa	Loganiaceae	ARBG	1994	Glyn Church
<i>Buddleia colvilei</i>	Himalaya	Asia	Loganiaceae	ARBG	1995	Caves Tree Nurser,
<i>Buddleia colvilei</i>	Himalaya	Asia	Loganiaceae	ARBG	1998	Caves Tree Nurser,
<i>Buddleia crispa</i>	India	Asia	Loganiaceae	ARBG	1991	Caves Tree Nurser,
<i>Buddleia crispa</i>	India	Asia	Loganiaceae	ARBG	1994	Top Trees Nursery
<i>Buddleia davidii</i> 'Nanho Blue'	Horticultural	Horticultural	Loganiaceae	ARBG	1991	Lyndale Nurseries
<i>Buddleia davidii</i> 'Nanho Blue'	Horticultural	Horticultural	Loganiaceae	ARBG	1995	Tandarra Nurserie
<i>Buddleia davidii</i> 'Petite Indigo'	Horticultural	Horticultural	Loganiaceae	ARBG	1994	Parva Plants
<i>Buddleia davidii</i> 'Pink Delight'	Horticultural	Horticultural	Loganiaceae	ARBG	1993	Joy Plants
<i>Buddleia fallowiana</i>	China	Asia	Loganiaceae	ARBG	1994	Top Trees Nursery
<i>Buddleia farreri</i>	China	Asia	Loganiaceae	ARBG	1992	Hamilton City
<i>Buddleia globosa</i>	Chile, Peru	South America	Loganiaceae	ARBG	1992	Fiona McDonald
<i>Buddleia globosa</i>	Chile, Peru	South America	Loganiaceae	ARBG	1994	Eion Scarrow
<i>Buddleia globosa</i>	Chile, Peru	South America	Loganiaceae	ARBG	1996	Graham F. Smith
<i>Buddleia lindleyana</i>	China	Asia	Loganiaceae	ARBG	1992	Parva Plants
<i>Buddleia madagascariensis</i>	Madagascar	Africa	Loganiaceae	ARBG	1995	George Rainey
<i>Buddleia x weyeriana</i> 'Gold Glow'	Horticultural	Horticultural	Loganiaceae	ARBG	1980	Duncan & Davies
<i>Buddleia x weyeriana</i> 'Sungold'	Horticultural	Horticultural	Loganiaceae	ARBG	1980	Duncan & Davies
<i>Lagerstroemia indica</i>	Tropical Asia	Asia	Lythraceae	DOMAIN		3
<i>Lagerstroemia indica</i>	Tropical Asia	Asia	Lythraceae	UNI		87
<i>Lagerstroemia indica</i>	Tropical Asia	Asia	Lythraceae	MANUKAU		14
<i>Lagerstroemia indica</i>	Tropical Asia	Asia	Lythraceae	STREET		1
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	STREET		1
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	ARBG	1991	Dr. Peter Brook
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	GOVH	1899	2
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	ALBERT		1
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	WILSON		1
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	RICHMOND		1

<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	DOMAIN		1	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	CENTENNIAL		2	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	WAITAKERE		1	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	MT WELL		1	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	WINNI		3	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	UNI		26	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	STREET		4	
<i>Liriodendron tulipifera</i>	USA	North America	Magnoliaceae	SHORE		1	
<i>Liriodendron tulipifera</i> 'Arnold'	Horticultural	Horticultural	Magnoliaceae	UNI		1	
<i>Liriodendron tulipifera</i> 'Aureum'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	2	
<i>Liriodendron tulipifera</i> 'Fastigiatum'	Horticultural	Horticultural	Magnoliaceae	STREET		2	
<i>Magnolia</i> 'Albatross'	Horticultural	Horticultural	Magnoliaceae	ARBG	1994	Caves Tree Nurser	1
<i>Magnolia</i> 'Ann' (Kosar hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Apollo' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1994	Mark Jury	1
<i>Magnolia</i> 'Athene' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1989	Mark Jury	1
<i>Magnolia</i> 'Atlas' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1989	Mark Jury	1
<i>Magnolia</i> 'Black Tulip'	Horticultural	Horticultural	Magnoliaceae	ARBG	1998	Mark Jury	1
<i>Magnolia</i> 'Caerhays Belle'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser	1
<i>Magnolia</i> 'Charles Coates' (<i>sieboldii</i> x <i>tripetala</i>)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Delicatissima'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Galaxy'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'George Henry Kern'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Heaven Scent' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Iolanthe' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	STREET		1	
<i>Magnolia</i> 'Iolanthe' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia</i> 'Iolanthe' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	EDEN	1994 +		1
<i>Magnolia</i> 'Jersey Belle'	Horticultural	Horticultural	Magnoliaceae	ARBG	1993	Caves Tree Nurser	1
<i>Magnolia</i> 'Koban Dori'	Horticultural	Horticultural	Magnoliaceae	ARBG	1997	Duncan & Davies	1
<i>Magnolia</i> 'Manchu Fan' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1988	Caves Tree Nurser	1
<i>Magnolia</i> 'Mark Jury' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia</i> 'Maryland'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Maryland'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Duncan & Davies	1
<i>Magnolia</i> 'Milky Way' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1989	Mark Jury	1

<i>Magnolia</i> 'Milky Way' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	EDEN		1	
<i>Magnolia</i> 'New Purple Caerhays seedling'	Horticultural	Horticultural	Magnoliaceae	EDEN	1997	Caves Tree Nurser	1
<i>Magnolia</i> 'Orchid'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Paul Cook'	Horticultural	Horticultural	Magnoliaceae	ARBG	1995	Tikitere	1
<i>Magnolia</i> 'Peppermint Stick' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Pinkie' (Kosar hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Princess Margaret'	Horticultural	Horticultural	Magnoliaceae	ARBG	1997	Duncan & Davies	1
<i>Magnolia</i> 'Pristine'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Purple Eye'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Rouged Alabaster'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Royal Crown' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Royal Crown' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Duncan & Davies	1
<i>Magnolia</i> 'Ruby'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser	1
<i>Magnolia</i> 'Sayonara' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser	1
<i>Magnolia</i> 'Sayonara' (Gresham hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Caves Tree Nurser	1
<i>Magnolia</i> 'Serene' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser	1
<i>Magnolia</i> 'Snow Queen'	Horticultural	Horticultural	Magnoliaceae	ARBG	1997	Duncan & Davies	1
<i>Magnolia</i> 'Spectrum'	Horticultural	Horticultural	Magnoliaceae	ARBG	1994	Duncan & Davies	1
<i>Magnolia</i> 'Star Wars'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Star Wars'	Horticultural	Horticultural	Magnoliaceae	EDEN	1994 +		1
<i>Magnolia</i> 'Susan' (Kosar hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia</i> 'Sweetheart' (Caerhays Belle seedling)	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Caves Tree Nurser	1
<i>Magnolia</i> 'Sweetheart' (Caerhays Belle seedling)	Horticultural	Horticultural	Magnoliaceae	ARBG	1993	Caves Tree Nurser	1
<i>Magnolia</i> 'Sweetheart' (Caerhays Belle seedling)	Horticultural	Horticultural	Magnoliaceae	EDEN	1998	Caves Tree Nurser	1
<i>Magnolia</i> 'Tina Durio'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Wholesale Tree Co.	1
<i>Magnolia</i> 'Vulcan' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	MARC	1993	Mark Jury	1
<i>Magnolia</i> 'Vulcan' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	ARBG	1989	Mark Jury	1
<i>Magnolia</i> 'Vulcan' (Jury hyd)	Horticultural	Horticultural	Magnoliaceae	EDEN	1994 +		1
<i>Magnolia</i> 'Wadas Memory'	Horticultural	Horticultural	Magnoliaceae	ARBG	1995	Tikitere	1
<i>Magnolia</i> 'Yellow Fever'	Horticultural	Horticultural	Magnoliaceae	ARBG	1989		1
<i>Magnolia</i> 'Yellow Fever'	Horticultural	Horticultural	Magnoliaceae	ARBG	1997	Duncan & Davies	1
<i>Magnolia</i> 'Yellow Fever'	Horticultural	Horticultural	Magnoliaceae	EDEN			1
<i>Magnolia</i> 'Yellowbird'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985		1

<i>Magnolia acuminata</i> var. <i>subcordata</i>	USA	North America	Magnoliaceae	ARBG	1996	Caves Tree Nurser,	1
<i>Magnolia acuminata</i> var. <i>subcordata</i> 'Miss Honeybe'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia amoena</i>	USA	North America	Magnoliaceae	ARBG	1997	Caves Tree Nurser,	1
<i>Magnolia ashei</i>	N America	North America	Magnoliaceae	ARBG	1998	Caves Tree Nurser,	1
<i>Magnolia biondii</i>	China	Asia	Magnoliaceae	ARBG	1997	Caves Tree Nurser,	1
<i>Magnolia campbellii</i>	Himalaya	Asia	Magnoliaceae	ARBG	1987	Caves Tree Nurser,	1
<i>Magnolia campbellii</i>	Himalaya	Asia	Magnoliaceae	ARBG	1989	Caves Tree Nurser,	1
<i>Magnolia campbellii</i>	Himalaya	Asia	Magnoliaceae	GOVH	1969		1
<i>Magnolia campbellii</i>	Himalaya	Asia	Magnoliaceae	UNI			1
<i>Magnolia campbellii</i> 'Charles Raffill'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	2
<i>Magnolia campbellii</i> 'Charles Raffill'	Horticultural	Horticultural	Magnoliaceae	CENTENNIAL			2
<i>Magnolia campbellii</i> 'Darjeeling'	Horticultural	Horticultural	Magnoliaceae	ARBG	1991	Caves Tree Nurser,	1
<i>Magnolia campbellii</i> 'Iolanthe'	Horticultural	Horticultural	Magnoliaceae	UNI			1
<i>Magnolia campbellii</i> 'Kew Suprise'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Caves Tree Nurser,	1
<i>Magnolia campbellii</i> 'Lanarth'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia campbellii</i> 'Lanarth'	Horticultural	Horticultural	Magnoliaceae	UNI			1
<i>Magnolia campbellii</i> 'Strybing White'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser,	1
<i>Magnolia campbellii</i> 'Strybing White'	Horticultural	Horticultural	Magnoliaceae	ARBG	1993	Caves Tree Nurser,	1
<i>Magnolia campbellii</i> ssp. <i>mollicomata</i>	Himalaya	Asia	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia campbellii</i> ssp. <i>mollicomata</i>	Himalaya	Asia	Magnoliaceae	ARBG	1989	Palmers	1
<i>Magnolia campbellii</i> var. <i>alba</i>	Himalaya	Asia	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia campbellii</i> var. <i>alba</i> 'Chyverton'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia coco</i>	Java	Asia	Magnoliaceae	EDEN			1
<i>Magnolia cylindrica</i>	China	Asia	Magnoliaceae	ARBG	1987	Caves Tree Nurser,	1
<i>Magnolia dawsoniana</i>	China	Asia	Magnoliaceae	ARBG	1987	Caves Tree Nurser,	1
<i>Magnolia delavayi</i>	China	Asia	Magnoliaceae	ARBG	1985	Os Blumhardt	2
<i>Magnolia delavayi</i>	China	Asia	Magnoliaceae	UNI			21
<i>Magnolia denudata</i>	China	Asia	Magnoliaceae	ARBG	1985		2
<i>Magnolia denudata</i>	China	Asia	Magnoliaceae	ARBG	1988		1
<i>Magnolia denudata</i>	China	Asia	Magnoliaceae	ARBG	1994	Wholesale Tree Co.	2
<i>Magnolia denudata</i>	China	Asia	Magnoliaceae	CENTENNIAL			1
<i>Magnolia denudata</i>	China	Asia	Magnoliaceae	UNI			2
<i>Magnolia denudata</i> 'Forest's Pink'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1

<i>Magnolia denudata</i> 'Forest's Pink'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Wholesale Tree Co.	1
<i>Magnolia glabosa</i> (<i>tsarongensis</i>)	Himalaya, Yunnan	Asia	Magnoliaceae	ARBG	1997	Steve Benham	1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	ST KENTS			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	ARBG	1976		1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	GOVH	1919		5
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	UNITEC	Young		145
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	UNITEC	Mature		13
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	WESTERN			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	ALBERT			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	HAYMAN			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	WILSON			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	CELIA			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	HIGHWIC	1953-78		1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	WAITAKERE			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	MT WELL			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	WINNI			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	UNI			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	STREET			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	SHORE			1
<i>Magnolia grandiflora</i>	USA	North America	Magnoliaceae	NOTABLE			1
<i>Magnolia grandiflora</i> 'Edith Bogue'	Horticultural	Horticultural	Magnoliaceae	ARBG	1996	Duncan & Davies	1
<i>Magnolia grandiflora</i> 'Ferruginea'	Horticultural	Horticultural	Magnoliaceae	ARBG	1978		1
<i>Magnolia grandiflora</i> 'Ferruginea'	Horticultural	Horticultural	Magnoliaceae	CENTENNIAL			1
<i>Magnolia grandiflora</i> 'Goliath'	Horticultural	Horticultural	Magnoliaceae	ARBG	1978		2
<i>Magnolia grandiflora</i> 'Little Gem'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia grandiflora</i> 'Little Gem'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser,	1
<i>Magnolia grandiflora</i> 'Little Gem'	Horticultural	Horticultural	Magnoliaceae	ARBG	1996	Duncan & Davies	1
<i>Magnolia grandiflora</i> 'Little Gem'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	?	1
<i>Magnolia grandiflora</i> 'Majestic Beauty'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia grandiflora</i> 'Majestic Beauty'	Horticultural	Horticultural	Magnoliaceae	ARBG	1997	Duncan & Davies	1
<i>Magnolia grandiflora</i> 'Russet'	Horticultural	Horticultural	Magnoliaceae	ARBG	1978		1
<i>Magnolia grandiflora</i> 'Samuel Sommers'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Duncan & Davies	1
<i>Magnolia grandiflora</i> 'St Mary'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	3

<i>Magnolia grandiflora</i> 'Victoria'	Horticultural	Horticultural	Magnoliaceae	ARBG	1997	Duncan & Davies
<i>Magnolia grandiflora</i> var. <i>furfuracea</i>	Horticultural	Horticultural	Magnoliaceae	GOVT	1919	
<i>Magnolia hybrid</i> 'Galaxy'	Horticultural	Horticultural	Magnoliaceae	STREET		
<i>Magnolia hypoleuca</i> (obovata)	Japan	Asia	Magnoliaceae	ARBG	1997	Caves Tree Nurser,
<i>Magnolia kobus</i>	Japan	Asia	Magnoliaceae	ARBG	1989	Palmer's
<i>Magnolia kobus</i> 'Norman Gould'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia kobus</i> var. <i>stellata</i> 'Dawn'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia kobus</i> var. <i>stellata</i> 'Waterlily'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia liliiflora</i> (purpurea, pentapeta)	China	Asia	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia liliiflora</i> (purpurea, pentapeta)	China	Asia	Magnoliaceae	GOVH	1939	
<i>Magnolia liliiflora</i> (purpurea, pentapeta)	China	Asia	Magnoliaceae	ALBERT		
<i>Magnolia liliiflora</i> (purpurea, pentapeta)	China	Asia	Magnoliaceae	EDEN	1989 +	
<i>Magnolia liliiflora</i> (purpurea, pentapeta)	China	Asia	Magnoliaceae	UNI		
<i>Magnolia liliiflora</i> 'Mini Mouse'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia liliiflora</i> 'Nigra'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia loebneri</i> 'Leonard Messel'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia loebneri</i> 'Merril'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia macrophylla</i>	USA	North America	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia macrophylla</i>	USA	North America	Magnoliaceae	EDEN	1997	Caves Tree Nurser,
<i>Magnolia macrophylla</i> var. <i>ashei</i>	USA	North America	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia nitida</i>	China, Tibet	Asia	Magnoliaceae	ARBG	1992	Caves Tree Nurser,
<i>Magnolia obovata</i>	Japan	Asia	Magnoliaceae	GOVH	1949	
<i>Magnolia officinalis</i> var. <i>biloba</i>	China	Asia	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia salicifolia</i>	Japan	Asia	Magnoliaceae	ARBG	1987	Caves Tree Nurser,
<i>Magnolia sargentiana</i>	China	Asia	Magnoliaceae	ARBG	1989	Caves Tree Nurser,
<i>Magnolia sargentiana</i>	China	Asia	Magnoliaceae	ARBG	1992	Caves Tree Nurser,
<i>Magnolia sargentiana</i> var. <i>robusta</i>	China	Asia	Magnoliaceae	ARBG	1987	Caves Tree Nurser,
<i>Magnolia sargentiana</i> var. <i>robusta</i>	China	Asia	Magnoliaceae	ARBG	1992	ex Caerhays
<i>Magnolia sieboldii</i>	Japan, Korea	Asia	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia sieboldii</i>	Japan, Korea	Asia	Magnoliaceae	ARBG	1997	Steve Benham
<i>Magnolia sieboldii</i> 'Red Eye'	Horticultural	Horticultural	Magnoliaceae	ARBG	1994	Duncan & Davies
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Burncoose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Burncoose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1988	Caves Tree Nurser,

<i>Magnolia sprengeri</i> var. <i>diva</i> 'Burncoose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1989	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Burncoose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1991	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Burncoose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1993	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Copeland Court'	Horticultural	Horticultural	Magnoliaceae	ARBG	1993	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Copeland Court'	Horticultural	Horticultural	Magnoliaceae	ARBG	1994	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Diva'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Diva'	Horticultural	Horticultural	Magnoliaceae	ARBG	1988	Caves Tree Nurser,
<i>Magnolia sprengeri</i> var. <i>diva</i> 'Diva'	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Wholesale Tree Co.
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	ARBG	1976	Pettits Garden
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	ARBG	1986	
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	ARBG	1994	Wholesale Tree Co.
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	EDEN	1998	Wholesale Tree Co.
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	EDEN	1979	
<i>Magnolia stellata</i>	Japan	Asia	Magnoliaceae	UNI		
<i>Magnolia stellata</i> 'Dawn'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia stellata</i> 'King Rose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia stellata</i> 'Roses'	Horticultural	Horticultural	Magnoliaceae	EDEN	1997	
<i>Magnolia stellata</i> 'Royal Star'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies
<i>Magnolia stellata</i> 'Waterlily'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia stellata</i> 'Waterlily'	Horticultural	Horticultural	Magnoliaceae	ARBG	1993	Wholesale Tree Co.
<i>Magnolia tripetala</i>	USA	North America	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia tripetala</i>	USA	North America	Magnoliaceae	ARBG	1993	Caves Tree Nurser,
<i>Magnolia wilsonii</i>	China	Asia	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia wilsonii</i>	China	Asia	Magnoliaceae	ARBG	1992	
<i>Magnolia wilsonii</i>	China	Asia	Magnoliaceae	ARBG	1993	Caves Tree Nurser,
<i>Magnolia wilsonii</i>	China	Asia	Magnoliaceae	ARBG	1994	Caves Tree Nurser,
<i>Magnolia x proctoriana</i> (kobus x salicifolia)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia x brooklynensis</i> 'Evamaria'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt
<i>Magnolia x brooklynensis</i> 'Woodsmen'	Horticultural	Horticultural	Magnoliaceae	ARBG	1987	Caves Tree Nurser,
<i>Magnolia x brooklynensis</i> 'Woodsmen'	Horticultural	Horticultural	Magnoliaceae	ARBG	1989	Caves Tree Nurser,
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1976	
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1978	

<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1985	Os Blumhardt	2
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1987		1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1988		2
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1989	Botannix Garden	1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ALBERT			2
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	GOVT	1909		19
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ALBERTON			1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	CENTENNIAL			1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	UNI			1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	STREET			1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	SHORE			1
<i>Magnolia x soulangeana</i>	China	Asia	Magnoliaceae	ARBG	1975	Pettits Garden	1
<i>Magnolia x soulangeana</i> (<i>denudata x liliflora</i>)	China	Asia	Magnoliaceae	ARBG	1994	Wholesale Tree Co.	1
<i>Magnolia x soulangeana</i> 'Alba Superba'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia x soulangeana</i> 'Alexandrina'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia x soulangeana</i> 'Burgandy'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia x soulangeana</i> 'Grace McDade'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia x soulangeana</i> 'Lennei'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia x soulangeana</i> 'Picture'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia x soulangeana</i> 'Rustica Rubra'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia x soulangeana</i> 'San Jose'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Duncan & Davies	1
<i>Magnolia x soulangeana</i> 'San Jose'	Horticultural	Horticultural	Magnoliaceae	CENTENNIAL			1
<i>Magnolia x thompsoniana</i> (<i>tripetala x virginiana</i>)	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia x wieseneri</i>	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Magnolia x wieseneri</i>	Horticultural	Horticultural	Magnoliaceae	ARBG	1992	Wholesale Tree Co.	1
<i>Michelia</i> 'Bubbles' (<i>figo x doltsopa</i>)	Horticultural	Horticultural	Magnoliaceae	ARBG	1994	Growing	1
<i>Michelia</i> 'Bubbles' (<i>figo x doltsopa</i>)	Horticultural	Horticultural	Magnoliaceae	ARBG	1998	Caves Tree Nurser	1
<i>Michelia champaca</i>	Himalaya	Asia	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Michelia champaca</i>	Himalaya	Asia	Magnoliaceae	DOMAIN			1
<i>Michelia champaca</i>	Himalaya	Asia	Magnoliaceae	CENTENNIAL			1
<i>Michelia champaca</i>	Himalaya	Asia	Magnoliaceae	UNI			1
<i>Michelia compressa</i>	Japan	Asia	Magnoliaceae	ARBG	1991	Caves Tree Nurser	1
<i>Michelia compressa</i>	Japan	Asia	Magnoliaceae	ARBG	1992	Caves Tree Nurser	5
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	MARC	1984	Peter Brooke	1

<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	ARBG	1976		1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	ARBG	1978	Duncan & Davies	1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	ARBG	1983	Os Blumhardt	1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	ARBG	1985		1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	ARBG	1990	Auckland	1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	GOVH	1989		2
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	GOVH	1949		1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	GOVH	1929		1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	EDEN	1989 +		1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	DOMAIN			1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	CENTENNIAL			1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	CAMBRIA			2
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	CORNWALL			7
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	UNI			3
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	STREET			1
<i>Michelia doltsopa</i>	China	Asia	Magnoliaceae	ORATIA	1985		1
<i>Michelia figo</i>	China	Asia	Magnoliaceae	ARBG	1976		1
<i>Michelia figo</i>	China	Asia	Magnoliaceae	ARBG	1978	Duncan & Davies	1
<i>Michelia figo</i>	China	Asia	Magnoliaceae	EDEN	1989 +		1
<i>Michelia figo</i>	China	Asia	Magnoliaceae	DOMAIN			1
<i>Michelia figo</i>	China	Asia	Magnoliaceae	CORNWALL			1
<i>Michelia languinosa</i> (<i>velutina</i>)	Himalaya	Asia	Magnoliaceae	EDEN	1997		2
<i>Michelia maudiae</i>	China	Asia	Magnoliaceae	ARBG	1995	Caves Tree Nurser	1
<i>Michelia velutina</i>	Himalaya	Asia	Magnoliaceae	ARBG	1991	Fiona McDonald	1
<i>Michelia velutina</i>	Himalaya	Asia	Magnoliaceae	ARBG	1994	Caves Tree Nurser	1
<i>Michelia x foggi</i> 'Mixed up Miss'	Horticultural	Horticultural	Magnoliaceae	ARBG	1984		1
<i>Michelia x foggi</i> 'Mixed up Miss'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Michelia x foggi</i> 'Touch of Pink'	Horticultural	Horticultural	Magnoliaceae	ARBG	1984	Os Blumhardt	1
<i>Michelia x foggi</i> 'Touch of Pink'	Horticultural	Horticultural	Magnoliaceae	ARBG	1985	Os Blumhardt	1
<i>Michelia yunnanensis</i>	China	Asia	Magnoliaceae	ARBG	1993	Caves Tree Nurser	1
<i>Michelia yunnanensis</i>	China	Asia	Magnoliaceae	ARBG	1994	Caves Tree Nurser	1
<i>Michelia yunnanensis</i>	China	Asia	Magnoliaceae	ARBG	1995	Glyn Church	1
<i>Liriodendron tuliperifa</i>	USA	North America	Magnoliaceae	NOTABLE			1

<i>Hoheria angustifolia</i>	New Zealand	Australasia	Malvaceae	UNI		1
<i>Hoheria populnea</i>	New Zealand	Australasia	Malvaceae	CORNWALL		1
<i>Hoheria populnea</i>	New Zealand	Australasia	Malvaceae	VICTORIA		1
<i>Hoheria populnea</i>	New Zealand	Australasia	Malvaceae	UNI		102
<i>Hoheria populnea</i>	New Zealand	Australasia	Malvaceae	MANUKAU		70
<i>Hoheria populnea</i>	New Zealand	Australasia	Malvaceae	STREET		1
<i>Hoheria populnea</i> 'Alba'	Horticultural	Horticultural	Malvaceae	STREET		22
<i>Hoheria populnea</i> 'Variegata'	Horticultural	Horticultural	Malvaceae	MANUKAU		1
<i>Hoheria populnea</i> 'Variegata'	Horticultural	Horticultural	Malvaceae	STREET		12
<i>Hoheria sexstylosa</i>	New Zealand	Australasia	Malvaceae	MANUKAU		2
<i>Hoheria sexstylosa</i>	New Zealand	Australasia	Malvaceae	STREET		1
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	WESTERN		1
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	ALBERT		1
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	CELIA		2
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	WILSON		1
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	CAMBRIA		4
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	UNI		32
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	STREET		2
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	SHORE		1
<i>Lagunaria pattersonii</i>	Norfolk Island, Aust	Australasia	Malvaceae	NOTABLE		3
<i>Plagianthus regius</i>	New Zealand	Australasia	Malvaceae	STREET		9
<i>Plagianthus regius</i>	New Zealand	Australasia	Malvaceae	STREET		1
<i>Tibouchina urvilleana</i>	Brazil	South America	Melastomataceae	ALBERT		2
<i>Dysoxylum pachyphyllum</i>	Lord Howe Island	Australasia	Meliaceae	UNI		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	CENTENNIAL		2
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	STREET		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	CAMBRIA		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	ORATIA		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	DEVONPORT		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	HIGHWIC		38
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	CORNWALL		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	WINNI		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	CEMETERY		2

<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	UNI		3
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	MANUKAU		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	CHELSEA		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	SHORE		1
<i>Dysoxylum spectabile</i>	New Zealand	Australasia	Meliaceae	NOTABLE		5
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	UNITEC	Young	3
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	UNITEC	Semi M	1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	UNITEC	Mature	3
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	UNITEC		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	ALBERT		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	HAYMAN		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	VICTORIA		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	DOMAIN		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	CENTENNIAL		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	WINNI		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	UNI		299
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	STREET		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	SHORE		1
<i>Melia azedarach</i>	Australia, Asia	Australasia, Asia	Meliaceae	NOTABLE		1
<i>Toona ciliata</i>	Australia, Asia	Australasia, Asia	Meliaceae	SPRINGS		1
<i>Toona ciliata</i>	Australia, Asia	Australasia, Asia	Meliaceae	ZOO		1
<i>Toona sinensis</i>	China	Asia	Meliaceae	UNI		2
<i>Broussonetia papyrifera</i>	Malaysia, Pacific Is	Asia	Monimaceae	STREET		1
<i>Laurelia novae-zelandiae</i>	New Zealand	Australasia	Monimaceae	CENTENNIAL		1
<i>Laurelia novae-zelandiae</i>	New Zealand	Australasia	Monimaceae	UNI		1
<i>Ficus auriculata</i>	Himalaya	Asia	Moraceae	ARBG	1990	Auckland
<i>Ficus auriculata</i>	Himalaya	Asia	Moraceae	ARBG	1992	Chiltern Seeds
<i>Ficus benghalensis</i>	India, Pakistan	Asia	Moraceae	ARBG	1990	Chiltern Seeds
<i>Ficus benghalensis</i>	India, Pakistan	Asia	Moraceae	ARBG	1994	Dr. Max Goodey
<i>Ficus benghalensis</i>	India, Pakistan	Asia	Moraceae	ARBG	1996	Michael
<i>Ficus carica</i>	Asia minor	Asia	Moraceae	ARBG	1994	Eion Scarrow
<i>Ficus carica</i>	Asia minor	Asia	Moraceae	ALBERON		4
<i>Ficus carica</i>	Asia minor	Asia	Moraceae	MANUKAU		5

<i>Ficus carica</i>	Asia minor	Asia	Moraceae	STREET			1
<i>Ficus carica</i>	Asia minor	Asia	Moraceae	CENTENNIAL			1
<i>Ficus carica</i> 'Lisa'	Horticultural	Horticultural	Moraceae	ARBG	1995	Wholesale Tree Co.	1
<i>Ficus cordata</i>	Australia	Australasia	Moraceae	ARBG	1992	Kirstenbosch	1
<i>Ficus cordata</i>	Australia	Australasia	Moraceae	ALBERON			1
<i>Ficus elastica</i>	Nepal, Assam, Burn	Asia	Moraceae	MARC	1974		4
<i>Ficus elastica</i>	Nepal, Assam, Burn	Asia	Moraceae	MANUKAU			3
<i>Ficus elastica</i>	Nepal, Assam, Burn	Asia	Moraceae	STREET			1
<i>Ficus gracilipes</i>	Australia	Australasia	Moraceae	ALBERT			1
<i>Ficus lyrata</i>	Tropical Africa	Africa	Moraceae	ARBG	1990	ARBG Nursery	1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	ARBG	1984		1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	UNITEC	Mature		1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	GOVH	1919		2
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	GOVH	1899		36
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	WESTERN			6
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	ALBERT			14
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	STREET			5
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	WILSON			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	VICTORIA			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	RICHMOND			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	CELIA			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	DOMAIN			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	CAMBRIA			3
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	WAITAKERE			20
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	CORNWALL			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	MT WELL			11
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	SHORE			1
<i>Ficus macrophylla</i>	Australia	Australasia	Moraceae	NOTABLE			1
<i>Ficus microcarpa</i>	Himalaya, Malaysia	Asia	Moraceae	ARBG	1998	Opanuku	1
<i>Ficus microcarpa</i>	Himalaya, Malaysia	Asia	Moraceae	OPANUKU			1
<i>Ficus obliqua</i>	Pacific Islands	Australasia	Moraceae	ARBG	1991	Wollongong City	1
<i>Ficus obliqua</i>	Pacific Islands	Australasia	Moraceae	CELIA			2
<i>Ficus religiosa</i>	India to Asia	Asia	Moraceae	MARC	1981	Beaumonts Nurs.	1

<i>Ficus religiosa</i>	India to Asia	Asia	Moraceae	UNI			1
<i>Ficus roxburghii</i>	Himalaya, Burma	Asia	Moraceae	ZOO			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	GOVH	1899+		4
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	WESTERN			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	ALBERT			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	RICHMOND			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	CELIA			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	DOMAIN			14
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	CORNWALL			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	MT WELL			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	CEMETERY			2
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	UNI			2
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	SHORE			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	MARC			1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	ARBG	1990	Chiltern Seeds	1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	ARBG	1991	Wollongong City	1
<i>Ficus rubiginosa</i>	Australia	Australasia	Moraceae	NOTABLE			1
<i>Ficus superba</i> var. <i>henniana</i>	Horticultural	Horticultural	Moraceae	ARBG	1991	Wollongong City	1
<i>Ficus superba</i> var. <i>henniana</i>	Horticultural	Horticultural	Moraceae	ALBERT			1
<i>Morus alba</i>	China	Asia	Moraceae	ARBG	1992	Wholesale Tree Co.	3
<i>Morus alba</i>	China	Asia	Moraceae	UNITEC	Mature		1
<i>Morus alba</i>	China	Asia	Moraceae	HIGHWIC	863-1900		13
<i>Morus alba</i>	China	Asia	Moraceae	MANUKAU			2
<i>Morus alba</i>	China	Asia	Moraceae	STREET			1
<i>Morus alba</i> 'Pendula'	Horticultural	Horticultural	Moraceae	ARBG	1990	Village Green	2
<i>Morus alba</i> 'Pendula' A2152	Horticultural	Horticultural	Moraceae	UNITEC	Mature		1
<i>Morus rubra</i>	SE Canada, E USA	North America	Moraceae	WINNI			1
<i>Myoporum laetum</i>	New Zealand	Australasia	Myoporaceae	WINNI			1
<i>Myoporum laetum</i>	New Zealand	Australasia	Myoporaceae	VICTORIA			7
<i>Myoporum laetum</i>	New Zealand	Australasia	Myoporaceae	CORNWALL			11
<i>Myoporum laetum</i>	New Zealand	Australasia	Myoporaceae	MANUKAU			25
<i>Myoporum laetum</i>	New Zealand	Australasia	Myoporaceae	STREET			95
<i>Myoporum lanceolatum</i>	?????	Australasia	Myoporaceae	MANUKAU			1

<i>Myrsine australis</i>	New Zealand	Australasia	Myrsinaceae	WINNI		13
<i>Myrsine australis</i>	New Zealand	Australasia	Myrsinaceae	CORNWALL		19
<i>Myrsine australis</i>	New Zealand	Australasia	Myrsinaceae	MANUKAU		2
<i>Myrsine australis</i>	New Zealand	Australasia	Myrsinaceae	UNI		28
<i>Myrsine australis</i>	New Zealand	Australasia	Myrsinaceae	STREET		1
<i>Myrsine salicina</i>	New Zealand	Australasia	Myrsinaceae	STREET		4
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	WESTERN		8
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	ALBERT		1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	RICHMOND		1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	CELIA		1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	HIGHWIC	863-1900	1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	HIGHWIC	1953-78	1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	CENTENNAIL		215
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	MT WELL		1
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	CEMETERY		7
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	UNI		44
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	WILSON		122
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	STREET		5
<i>Acmena smithii</i>	Australia	Australasia	Myrtaceae	SHORE		1
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	UNITEC	Semi M	1
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	WESTERN		364
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	ALBERT		397
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	MANUKAU		1
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	VICTORIA		1
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	DOMAIN		4
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	CORNWALL		2
<i>Agonis flexuosa</i>	Australia	Australasia	Myrtaceae	UNI		1
<i>Agonis juniperina</i>	Australia	Australasia	Myrtaceae	DOMAIN		46
<i>Agonis juniperina</i>	Australia	Australasia	Myrtaceae	MANUKAU		46

<i>Agonis juniperina</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Agonis juniperina</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Angophora costata</i>	Australia	Australasia	Myrtaceae	ZOO		3
<i>Angophora costata</i>	Australia	Australasia	Myrtaceae	WAITAKERE		2
<i>Backhousia citriodora</i>	Queensland	Australasia	Myrtaceae	CORNWALL		1
<i>Backhousia citriodora</i>	Queensland	Australasia	Myrtaceae	UNI		1
<i>Backhousia citriodora</i>	Queensland	Australasia	Myrtaceae	STREET		1
<i>Backhousia citriodora</i>	Queensland	Australasia	Myrtaceae	MANUKAU		1
<i>Callistemon citrinus</i>	Australia	Australasia	Myrtaceae	ALBERT		9
<i>Callistemon citrinus</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Callistemon citrinus</i>	Australia	Australasia	Myrtaceae	UNI		271
<i>Callistemon citrinus</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Callistemon rigidus</i>	Australia	Australasia	Myrtaceae	CEMETERY		12
<i>Callistemon viminalis</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Corymbia calophylla</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Corymbia calophylla</i>	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Corymbia citriodora</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Corymbia citriodora</i>	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Corymbia ficifolia</i>	Australia	Australasia	Myrtaceae	HAYMAN		1
<i>Corymbia ficifolia</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Corymbia ficifolia</i>	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Corymbia ficifolia</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Corymbia maculata</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Eucalyptus aggregata</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus bicostata</i>	Australia	Australasia	Myrtaceae	HAYMAN		51
<i>Eucalyptus bosistoana</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Eucalyptus botryoides</i>	Australia	Australasia	Myrtaceae	HAYMAN		1
<i>Eucalyptus botryoides</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Eucalyptus botryoides</i>	Australia	Australasia	Myrtaceae	CEMETERY		28
<i>Eucalyptus botryoides</i>	Australia	Australasia	Myrtaceae	CORNWALL		2
<i>Eucalyptus califera</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Eucalyptus caliginosa (E. baxteri & E. blaxlandii)</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus capitellata</i>	Australia	Australasia	Myrtaceae	CEMETERY		1

<i>Eucalyptus capitellata</i>	Australia	Australasia	Myrtaceae	CORNWALL	1
<i>Eucalyptus cinerea</i>	Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus cinerea</i>	Australia	Australasia	Myrtaceae	SPRINGS	1
<i>Eucalyptus cinerea</i>	Australia	Australasia	Myrtaceae	CEMETERY	15
<i>Eucalyptus cinerea</i>	Australia	Australasia	Myrtaceae	STREET	40
<i>Eucalyptus cinerea</i>	Australia	Australasia	Myrtaceae	MANUKAU	1
<i>Eucalyptus citriodora</i>	Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus cladocalyx</i>	Australia	Australasia	Myrtaceae	CEMETERY	1
<i>Eucalyptus considiana</i>	Australia	Australasia	Myrtaceae	CEMETERY	3
<i>Eucalyptus cordata</i>	Tasmania	Australasia	Myrtaceae	STREET	8
<i>Eucalyptus delegatensis</i>	Australia	Australasia	Myrtaceae	MANUKAU	1
<i>Eucalyptus diversicolor</i>	Australia	Australasia	Myrtaceae	CEMETERY	1
<i>Eucalyptus elata</i>	Tasmania	Australasia	Myrtaceae	MT WELL	1
<i>Eucalyptus eugenioides</i>	Australia	Australasia	Myrtaceae	CEMETERY	6
<i>Eucalyptus eugenioides</i>	Australia	Australasia	Myrtaceae	CORNWALL	1
<i>Eucalyptus fastigata</i>	Australia	Australasia	Myrtaceae	CEMETERY	1
<i>Eucalyptus fastigata</i>	Australia	Australasia	Myrtaceae	MT WELL	1
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	ALBERT	1
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	ALBERON	1
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	CELIA	1
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	WILSON	1
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	CORNWALL	29
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	STREET	303
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	MANUKAU	1
<i>Eucalyptus ficifolia</i>	Western Australia	Australasia	Myrtaceae	NOTABLE	1
<i>Eucalyptus fraainoides</i>	Western Australia	Australasia	Myrtaceae	CORNWALL	37
<i>Eucalyptus fraainoides</i>	Western Australia	Australasia	Myrtaceae	MANUKAU	1
<i>Eucalyptus globoidea</i>	Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus globoidea</i>	Australia	Australasia	Myrtaceae	SPRINGS	1
<i>Eucalyptus globoidea</i>	Australia	Australasia	Myrtaceae	CEMETERY	86
<i>Eucalyptus globoidea</i>	Australia	Australasia	Myrtaceae	MANUKAU	1
<i>Eucalyptus globulus</i>	Australia	Australasia	Myrtaceae	DOMAIN	2
<i>Eucalyptus globulus</i>	Australia	Australasia	Myrtaceae	STREET	1

<i>Eucalyptus grandis</i>	Australia	Australasia	Myrtaceae	HAYMAN	1
<i>Eucalyptus grandis</i>	Australia	Australasia	Myrtaceae	SPRINGS	1
<i>Eucalyptus grandis</i>	Australia	Australasia	Myrtaceae	ZOO	1
<i>Eucalyptus grandis</i>	Australia	Australasia	Myrtaceae	SHORE	1
<i>Eucalyptus guilfoylei</i>	Western Australia	Australasia	Myrtaceae	CEMETERY	1
<i>Eucalyptus gunnii</i>	Australia	Australasia	Myrtaceae	STREET	1
<i>Eucalyptus leucoxylon</i>	Australia	Australasia	Myrtaceae	SPRINGS	4
<i>Eucalyptus leucoxylon</i>	Australia	Australasia	Myrtaceae	CORNWALL	20
<i>Eucalyptus leucoxylon</i>	Australia	Australasia	Myrtaceae	MANUKAU	1
<i>Eucalyptus leucoxylon</i>	Australia	Australasia	Myrtaceae	STREET	1
<i>Eucalyptus longifolia</i>	Australia	Australasia	Myrtaceae	CEMETERY	1
<i>Eucalyptus macarthurii</i>	Australia	Australasia	Myrtaceae	RICHMOND	1
<i>Eucalyptus macarthurii</i>	Australia	Australasia	Myrtaceae	HAYMAN	1
<i>Eucalyptus macarthurii</i>	Australia	Australasia	Myrtaceae	CEMETERY	2
<i>Eucalyptus macarthurii</i>	Australia	Australasia	Myrtaceae	CORNWALL	1
<i>Eucalyptus major (A2208E. propinqua var. major)</i>	Australia	Australasia	Myrtaceae	RICHMOND	1
<i>Eucalyptus megacornuta</i>	Western Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus microcorys</i>	Australia	Australasia	Myrtaceae	ALBERT	1
<i>Eucalyptus microcorys</i>	Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus microcorys</i>	Australia	Australasia	Myrtaceae	CEMETERY	1
<i>Eucalyptus muelleriana</i>	Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus muelleriana</i>	Australia	Australasia	Myrtaceae	CEMETERY	7
<i>Eucalyptus muelleriana</i>	Australia	Australasia	Myrtaceae	CORNWALL	1
<i>Eucalyptus nicholii</i>	Australia	Australasia	Myrtaceae	HAYMAN	1
<i>Eucalyptus nicholii</i>	Australia	Australasia	Myrtaceae	SPRINGS	1
<i>Eucalyptus nicholii</i>	Australia	Australasia	Myrtaceae	WINNI	44
<i>Eucalyptus nicholii</i>	Australia	Australasia	Myrtaceae	MANUKAU	10
<i>Eucalyptus nicholii</i>	Australia	Australasia	Myrtaceae	STREET	3
<i>Eucalyptus nicholii</i>	Australia	Australasia	Myrtaceae	UNI	1
<i>Eucalyptus obliqua</i>	Australia	Australasia	Myrtaceae	HAYMAN	1
<i>Eucalyptus obliqua</i>	Australia	Australasia	Myrtaceae	DOMAIN	1
<i>Eucalyptus obliqua</i>	Australia	Australasia	Myrtaceae	SPRINGS	1
<i>Eucalyptus obliqua</i>	Australia	Australasia	Myrtaceae	CEMETERY	1

<i>Eucalyptus obliqua</i>	Australia	Australasia	Myrtaceae	CORNWALL		2
<i>Eucalyptus obliqua</i>	Australia	Australasia	Myrtaceae	UNI		1
<i>Eucalyptus ovata</i> (=brachypoda)	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Eucalyptus ovata</i>	Australia	Australasia	Myrtaceae	CEMETERY		9
<i>Eucalyptus ovata</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Eucalyptus pauciflora</i>	Australia	Australasia	Myrtaceae	NOTABLE		1
<i>Eucalyptus pauliflora</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Eucalyptus perriniana</i>	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Eucalyptus pilularis</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Eucalyptus pilularis</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus piperita</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus pulchella</i>	Australia	Australasia	Myrtaceae	CEMETERY	1918	1
<i>Eucalyptus punctata</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus radiata</i> (=amygdalina)	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus radiata</i>	Australia	Australasia	Myrtaceae	CORNWALL		1
<i>Eucalyptus resinifera</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus robusta</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus saligna</i>	Australia	Australasia	Myrtaceae	HAYMAN		1
<i>Eucalyptus saligna</i>	Australia	Australasia	Myrtaceae	DOMAIN		1
<i>Eucalyptus saligna</i>	Australia	Australasia	Myrtaceae	WAITAKERE		1
<i>Eucalyptus saligna</i>	Australia	Australasia	Myrtaceae	CEMETERY		122
<i>Eucalyptus saligna</i>	Australia	Australasia	Myrtaceae	MANUKAU		1
<i>Eucalyptus saligna</i>	Australia	Australasia	Myrtaceae	NOTABLE		1
<i>Eucalyptus saligna</i> (Sm. subsp. saligna)	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Eucalyptus saligna</i> (Sm. subsp. botryoides)	Australia	Australasia	Myrtaceae	SPRINGS		11
<i>Eucalyptus scoparia</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Eucalyptus sideroxylon</i>	Australia	Australasia	Myrtaceae	VICTORIA		50
<i>Eucalyptus sideroxylon</i>	Australia	Australasia	Myrtaceae	MANUKAU		4
<i>Eucalyptus sideroxylon</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Eucalyptus sieberi</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus spathulata</i>	Australia	Australasia	Myrtaceae	SPRINGS		1
<i>Eucalyptus tereticornis</i>	Australia	Australasia	Myrtaceae	CEMETERY		1
<i>Eucalyptus viminalis</i>	Australia	Australasia	Myrtaceae	HAYMAN		1

<i>Eucalyptus viminalis</i>	Australia	Australasia	Myrtaceae	CEMETERY		16
<i>Eucalyptus viminalis</i>	Australia	Australasia	Myrtaceae	MANUKAU		3
<i>Eugenia australe</i> (Syn. <i>Syzygium australe</i>)	Australia	Australasia	Myrtaceae	WESTERN		1
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	CELLA		4
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	WILSON		1
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	HIGHWIC	1900-53	821
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	MANUKAU		1
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	HIGHWIC	1953-78	21
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	STREET		1
<i>Eugenia australe</i>	Australia	Australasia	Myrtaceae	ST KENTS		1
<i>Eugenia myrtifolia</i>	Australia, Malaysia,	Australia, Asia, S	Myrtaceae	NOTABLE		1
<i>Feijoa sellowiana</i>	Brazil, Uruguay	South America	Myrtaceae	CORNWALL		1
<i>Feijoa sellowiana</i>	Brazil, Uruguay	South America	Myrtaceae	UNI		27
<i>Feijoa sellowiana</i>	Brazil, Uruguay	South America	Myrtaceae	MANUKAU		15
<i>Feijoa sellowiana</i>	Brazil, Uruguay	South America	Myrtaceae	STREET		5
<i>Kunzea ericoides</i> (<i>Leptospermum ericoides</i>)	New Zealand	Australasia	Myrtaceae	STREET		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	NOTABLE		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	DOMAIN		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	CAMBRIA		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	DEVONPORT		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	CENTENNIAL		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	WAITAKERE		1
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	CEMETERY		14
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	MANUKAU		6
<i>Kunzea ericoides</i>	New Zealand	Australasia	Myrtaceae	UNI		1
<i>Leptospermum laevigatum</i>	Australia	Australasia	Myrtaceae	ALBERT		1
<i>Leptospermum macrocarpum</i>	Australia	Australasia	Myrtaceae	STREET		8
<i>Leptospermum macrocarpum</i> 'Copper Sheen'	Horticultural	Horticultural	Myrtaceae	STREET		23
<i>Leptospermum nitidum</i> 'Copper Sheen'	Horticultural	Horticultural	Myrtaceae	STREET		3
<i>Leptospermum petersonii</i>	Australia	Australasia	Myrtaceae	UNI		5
<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	WAITAKERE		1
<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	CENTENNIAL		1
<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	CAMBRIA		1

<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	VICTORIA			1
<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	DEVONPORT			1
<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	UNI			2
<i>Leptospermum scoparium</i>	New Zealand, Austr	Australasia	Myrtaceae	STREET			52
<i>Lophomyrtus bullata</i>	New Zealand	Australasia	Myrtaceae	UNI			7
<i>Lophomyrtus bullata</i>	New Zealand	Australasia	Myrtaceae	STREET			1
<i>Lophomyrtus obcordata</i>	New Zealand	Australasia	Myrtaceae	STREET			493
<i>Lophostemon conferta</i>	Australia	Australasia	Myrtaceae	MANUKAU			1
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	ALBERT			1
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	DOMAIN			6
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	WILSON			1
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	SPRINGS			1
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	ZOO			1
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	UNI			132
<i>Lophostemon confertus</i>	Australia	Australasia	Myrtaceae	STREET			1
<i>Melaleuca leucadendra</i>	Australia	Australasia	Myrtaceae	CENTENNIAL			1
<i>Melaleuca linariifolia</i>	Australia	Australasia	Myrtaceae	DOMAIN			1
<i>Melaleuca linariifolia</i>	Australia	Australasia	Myrtaceae	STREET			1
<i>Melaleuca parviflora</i>	Australia	Australasia	Myrtaceae	STREET			2
<i>Melaleuca squarrosa</i>	Australia	Australia	Myrtaceae	STREET			1
<i>Metrosideros</i> 'Houparapara'	Horticultural	Horticultural	Myrtaceae	ARBG	1995	Platts Nursery	1
<i>Metrosideros</i> 'Houparapara' ?	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Platts Nursery	1
<i>Metrosideros</i> 'Maungapiko' (<i>excelsa</i> x <i>hermadecensis</i>)	Horticultural	Horticultural	Myrtaceae	ARBG	1991	ARBG Nursery	1
<i>Metrosideros</i> 'Mistral' (<i>robusta</i> x <i>excelsa</i>)	Horticultural	Horticultural	Myrtaceae	MARC	1986	Palmers	1
<i>Metrosideros</i> 'Mistral'	Horticultural	Horticultural	Myrtaceae	ARBG	1982	not recorded	1
<i>Metrosideros</i> 'Mistral'	Horticultural	Horticultural	Myrtaceae	ARBG	1989	Platts Nursery	1
<i>Metrosideros</i> 'Mistral'	Horticultural	Horticultural	Myrtaceae	ORATIA	1987	Rangitoto/Great Bs	1
<i>Metrosideros albiflora</i> (<i>diffusa</i> A. Cunn.)	New Zealand	Australasia	Myrtaceae	ORATIA	1994	Northland	1
<i>Metrosideros angustifolia</i>	South Africa, Austr	Africa, Australasia	Myrtaceae	ARBG	1998	Silverhill Seeds	1
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	MARC	1984	Platts Nursery	1
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1989	Platts Nursery	1
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1990	Platts Nursery	1
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1991	Platts Nursery	1

<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1995	Platts Nursery	1
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1998	Oratia Native Nur	2
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1993	Northland	1
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	UNI			3
<i>Metrosideros bartlettii</i>	New Zealand	Australasia	Myrtaceae	STREET			1
<i>Metrosideros carminea</i> (<i>diffusus</i> Hook.)	New Zealand	Australasia	Myrtaceae	ARBG	1989	not recorded	1
<i>Metrosideros carminea</i>	New Zealand	Australasia	Myrtaceae	ARBG	1991	not recorded	1
<i>Metrosideros carminea</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	ARBG Nursery	1
<i>Metrosideros carminea</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1987	Waitakere Ranges	1
<i>Metrosideros carminea</i>	New Zealand	Australasia	Myrtaceae	EDEN	1998	Duncan & Davies	2
<i>Metrosideros carminea</i> 'Ferris Wheel'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros carminea</i> 'Ferris Wheel'	Horticultural	Horticultural	Myrtaceae	EDEN	1997	Duncan & Davies	1
<i>Metrosideros collina</i> (<i>diffusus</i> (G.Forst)Sm, not Hoc)	Tahiti, Hawaii	Australasia	Myrtaceae	ARBG	1991	Botannix Garden	1
<i>Metrosideros collina</i>	Tahiti, Hawaii	Australasia	Myrtaceae	ARBG	1992	Felix Jury	1
<i>Metrosideros collina</i>	Tahiti, Hawaii	Australasia	Myrtaceae	ARBG	1994	Duncan & Davies	1
<i>Metrosideros collina</i>	Tahiti, Hawaii	Australasia	Myrtaceae	ARBG	1998	Alex Gardiner	1
<i>Metrosideros collina</i>	Tahiti, Hawaii	Australasia	Myrtaceae	ORATIA	1987	Waitakere Ranges	1
<i>Metrosideros collina</i> 'Spring Fire'	Horticultural	Horticultural	Myrtaceae	EDEN	1997	Naturally Native	1
<i>Metrosideros collina</i> var. <i>vitiensis</i>	Horticultural	Horticultural	Myrtaceae	ARBG	1994	Jenny Oliphant	1
<i>Metrosideros diffusa</i> (Forst. F.) W.R.B. Oliver	New Zealand	Australasia	Myrtaceae	MARC	1989	Platts Nursery	1
<i>Metrosideros diffusa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	Joy Plants	2
<i>Metrosideros diffusa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1997	Keith & Copper	1
<i>Metrosideros diffusa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1997	Oratia Native Nur	2
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1982		4
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	Jack Hobbs	3
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1994	Duncan & Davies	1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1995	George Rainey	2
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1997	Steve Benham	1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	UNITEC	Mature		1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	UNITEC	Post M		15
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	GOVH	1919		34
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	GOVH	1899		1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1975		1

<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	GOVH	1899+		21
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	WILSON			44
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	VICTORIA			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	CHELSEA			2
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	WESTERN			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ALBERT			5
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	RICHMOND			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	WAITAKERE			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	CELA			26
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	HIGHWIC	1900-53		1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	CAMBRIA			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	CENTENNIAL			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	WAITAKERE			14
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	MT WELL			589
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	WINNI			455
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	CEMETERY			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	UNI			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	STREET			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	SHORE			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	NOTABLE			1
<i>Metrosideros excelsa</i>	New Zealand	Australasia	Myrtaceae	ST KENTS			1
<i>Metrosideros excelsa</i> (tomentosa) (orange/yellow flow)	New Zealand	Australasia	Myrtaceae	MARC	1969	Coromandel	1
<i>Metrosideros excelsa</i> (tomentosa) (orange/yellow flow)	New Zealand	Australasia	Myrtaceae	EDEN			1
<i>Metrosideros excelsa</i> (tomentosa) (orange/yellow flow)	New Zealand	Australasia	Myrtaceae	DOMAIN			1
<i>Metrosideros excelsa</i> (compact form)	New Zealand	Australasia	Myrtaceae	ARBG	1992	Jack Hobbs	1
<i>Metrosideros excelsa</i> 'Butterscotch'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros excelsa</i> 'Fire Mountain'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros excelsa</i> 'Fire Stone'	Horticultural	Horticultural	Myrtaceae	ARBG	1989	Joy Plants	1
<i>Metrosideros excelsa</i> 'Fire Stone'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Platts Nursery	1
<i>Metrosideros excelsa</i> 'Flame Crest'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros excelsa</i> 'Gold Finger'	Horticultural	Horticultural	Myrtaceae	MARC	1989	Palmers	1
<i>Metrosideros excelsa</i> 'Maori Princess'	Horticultural	Horticultural	Myrtaceae	STREET			1
<i>Metrosideros excelsa</i> 'Mary'	Horticultural	Horticultural	Myrtaceae	ARBG	1995	Joy Plants	1

<i>Metrosideros excelsa</i> 'Moon Maiden'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros excelsa</i> 'Parnell'	Horticultural	Horticultural	Myrtaceae	MARC	1987	Palmers	2
<i>Metrosideros excelsa</i> 'Parnell'	Horticultural	Horticultural	Myrtaceae	ARBG	1998	Mitch Graham	1
<i>Metrosideros excelsa</i> 'Parnell'	Horticultural	Horticultural	Myrtaceae	ORATIA	1996	Parnell	1
<i>Metrosideros excelsa</i> 'Pink Lady'	Horticultural	Horticultural	Myrtaceae	MARC	1987	Palmers	1
<i>Metrosideros excelsa</i> 'Pink Lady'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros excelsa</i> 'Rangitoto'	Horticultural	Horticultural	Myrtaceae	MARC	1984	Platts Nursery	1
<i>Metrosideros excelsa</i> 'Royal Flame'	Horticultural	Horticultural	Myrtaceae	MARC	1987	Palmers	3
<i>Metrosideros excelsa</i> 'Royal Flame'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Duncan & Davies	1
<i>Metrosideros excelsa</i> 'Scarlet Pimpernel'	Horticultural	Horticultural	Myrtaceae	MARC	1987	Palmers	1
<i>Metrosideros excelsa</i> 'Scarlet Pimpernel'	Horticultural	Horticultural	Myrtaceae	ARBG	1979		1
<i>Metrosideros excelsa</i> 'Scarlet Pimpernel'	Horticultural	Horticultural	Myrtaceae	EDEN	1997	Naturally Native	1
<i>Metrosideros excelsa</i> 'Scarlet Pimpernel'	Horticultural	Horticultural	Myrtaceae	ORATIA	1996		9
<i>Metrosideros excelsa</i> 'Springfire'	Horticultural	Horticultural	Myrtaceae	STREET			1
<i>Metrosideros excelsa</i> 'Tamaki'	Horticultural	Horticultural	Myrtaceae	ARBG	1994	Dawn Rothay	1
<i>Metrosideros excelsa</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	UNI			1
<i>Metrosideros excelsa</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	STREET			1
<i>Metrosideros excelsa</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	NOTABLE			1
<i>Metrosideros excelsa</i> 'Vibrance'	Horticultural	Horticultural	Myrtaceae	ARBG	1989	Joy Plants	1
<i>Metrosideros excelsa</i> 'Vibrance'	Horticultural	Horticultural	Myrtaceae	ARBG	1991	Auckland	1
<i>Metrosideros excelsa</i> 'Vibrance'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Platts Nursery	1
<i>Metrosideros excelsa</i> 'Vibrance'	Horticultural	Horticultural	Myrtaceae	ARBG	1995	Joy Plants	2
<i>Metrosideros excelsa</i> 'Vibrance'	Horticultural	Horticultural	Myrtaceae	ARBG	1997	Dawn Rothay	1
<i>Metrosideros excelsa</i> 'Xmas Cheer'	Horticultural	Horticultural	Myrtaceae	ARBG	1992	Platts Nursery	1
<i>Metrosideros fulgens</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	Dunedin Botanic	1
<i>Metrosideros fulgens</i>	New Zealand	Australasia	Myrtaceae	ARBG	1994	Auckland City C.	1
<i>Metrosideros fulgens</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1997		1
<i>Metrosideros fulgens</i> (light orange form)	New Zealand	Australasia	Myrtaceae	ARBG	1994	G.F. Corbett	1
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	ARBG	1990	Platts Nursery	1
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	DOMAIN			1
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	VICTORIA			11
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	WAITAKERE			102
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	UNI			1

<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	STREET			2
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1987	Kermadec Island	1
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	MARC	1959		1
<i>Metrosideros kermadecensis</i>	New Zealand	Australasia	Myrtaceae	NOTABLE			1
<i>Metrosideros kermadecensis</i> 'Radiant'	Horticultural	Horticultural	Myrtaceae	MARC	1984	Palmers	1
<i>Metrosideros kermadecensis</i> 'Red and Gold'	Horticultural	Horticultural	Myrtaceae	MARC	1984		1
<i>Metrosideros kermadecensis</i> 'Sunninghill'	Horticultural	Horticultural	Myrtaceae	MARC	1984	Palmers	1
<i>Metrosideros kermadecensis</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	MARC	1984	Palmers	9
<i>Metrosideros kermadecensis</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	ARBG	1976	Dawn Rothay	1
<i>Metrosideros kermadecensis</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	ARBG	1988		1
<i>Metrosideros kermadecensis</i> 'Variegata'	Horticultural	Horticultural	Myrtaceae	STREET			1
<i>Metrosideros nervulosa</i>	New Zealand	Australasia	Myrtaceae	ARBG	1998	Opanuku	1
<i>Metrosideros nervulosa</i>	New Zealand	Australasia	Myrtaceae	OPANUKU			1
<i>Metrosideros parkinsonii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1995	Platts Nursery	2
<i>Metrosideros parkinsonii</i>	New Zealand	Australasia	Myrtaceae	ARBG	1996	North Shore City C	1
<i>Metrosideros parkinsonii</i>	New Zealand	Australasia	Myrtaceae	STREET			1
<i>Metrosideros perforata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1997	Oratia Native Nurs	1
<i>Metrosideros perforata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1997	Naturally Native	1
<i>Metrosideros perforata</i>	New Zealand	Australasia	Myrtaceae	ORATIA			1
<i>Metrosideros perforata</i>	New Zealand	Australasia	Myrtaceae	GOVT	1969		3
<i>Metrosideros polymorpha</i> 'Tahiti'	Horticultural	Horticultural	Myrtaceae	STREET			1
<i>Metrosideros queenslandica</i>	Australia	Australasia	Myrtaceae	ARBG	1995	Joy Plants	2
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	Joy Plants	1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	Duncan & Davies	3
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1993	Joy Plants	2
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1995	Platts Nursery	1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1998	David Jenkins	1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1975	Waitakere Ranges	4
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	UNI			1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1994	Jenny Oliphant	1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	ARBG	1995	Platts Nursery	1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	STREET			1
<i>Metrosideros robusta</i>	New Zealand	Australasia	Myrtaceae	NOTABLE			1

<i>Metrosideros tomentosum</i> see <i>excelsa</i>	New Zealand	Australasia	Myrtaceae	DOMAIN			1
<i>Metrosideros tomentosum</i> see <i>excelsa</i>	New Zealand	Australasia	Myrtaceae	WESTERN			1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	MARC	1984	Platts Nursery	1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1989	Platts Nursery	2
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1992	Dunedin Botanic	1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1994	Hokonui Alpines	1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1994	J.C. Moore	1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ARBG	1994	A.M. & M.L. ?????	3
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ALBERT			1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	WAITAKERE			1
<i>Metrosideros umbellata</i>	New Zealand	Australasia	Myrtaceae	ORATIA	1997		1
<i>Metrosideros villosa</i> 'Tahiti'	Horticultural	Horticultural	Myrtaceae	MARC	1989	Trade	1
<i>Metrosideros villosa</i> 'Tahiti'	Horticultural	Horticultural	Myrtaceae	ARBG	1989		1
<i>Metrosideros villosa</i> 'Tahiti'	Horticultural	Horticultural	Myrtaceae	ARBG	1996	The late Brian ????	1
<i>Myrtus communis</i>	Mediterranean	Europe	Myrtaceae	CEMETERY			1
<i>Psidium cattleianum</i>	Brazil	South America	Myrtaceae	ALBERT			4
<i>Psidium cattleianum</i> var. <i>litorale</i>	Horticultural	Horticultural	Myrtaceae	STREET			1
<i>Psidium guajava</i>	Tropical America	South America	Myrtaceae	CORNWALL			3
<i>Psidium guajava</i>	Tropical America	South America	Myrtaceae	MANUKAU			1
<i>Syncarpia glomulifera</i>	Australia	Australasia	Myrtaceae	DOMAIN			1
<i>Syncarpia glomulifera</i>	Australia	Australasia	Myrtaceae	CELIA			1
<i>Syncarpia glomulifera</i>	Australia	Australasia	Myrtaceae	NOTABLE			1
<i>Syzygium floribundum</i>	New Guinea	Australasia	Myrtaceae	WESTERN			1
<i>Syzygium jambos</i>	Malaysia, Indonesia	Asia	Myrtaceae	ALBERT			1
<i>Syzygium jambos</i>	Malaysia, Indonesia	Asia	Myrtaceae	ZOO			1
<i>Syzygium maire</i>	New Zealand	Australasia	Myrtaceae	CENTENNIAL			1
<i>Syzygium maire</i>	New Zealand	Australasia	Myrtaceae	ORATIA			1
<i>Syzygium maire</i>	New Zealand	Australasia	Myrtaceae	SHORE			1
<i>Syzygium oleosum</i>	Australia	Australasia	Myrtaceae	WESTERN			2
<i>Syzygium paniculatum</i>	Australia	Australasia	Myrtaceae	UNITEC			1
<i>Syzygium paniculatum</i>	Australia	Australasia	Myrtaceae	DOMAIN			1
<i>Syzygium paniculatum</i>	Australia	Australasia	Myrtaceae	STREET			1
<i>Syzygium ventenatti</i>	Australia	Australasia	Myrtaceae	NOTABLE			2

<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	UNITEC			1
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	ALBERT			1
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	DOMAIN			1
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	VICTORIA			1
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	WESTERN			1
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	UNI			126
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	MANUKAU			128
<i>Tristaniopsis laurina</i>	Australia	Australasia	Myrtaceae	STREET			1
<i>Waterhousea floribunda</i>	Australia	Australasia	Myrtaceae	HIGHWIC			1
<i>Waterhousea floribunda</i>	Australia	Australasia	Myrtaceae	WESTERN			1
<i>Waterhousea floribunda</i>	Australia	Australasia	Myrtaceae	STREET			1
<i>Pisonia brunoniana</i>	New Zealand	Australasia	Nyctaginaceae	WINNI			4
<i>Pisonia brunoniana</i>	New Zealand	Australasia	Nyctaginaceae	MANUKAU			1
<i>Pisonia brunoniana</i>	New Zealand	Australasia	Nyctaginaceae	CORNWALL			1
<i>Nyssa sylvatica</i>	E.N. America	North America	Nyssaceae	HAYMAN			1
<i>Nyssa sylvatica</i>	E.N. America	North America	Nyssaceae	DOMAIN			1
<i>Nyssa sylvatica</i>	E.N. America	North America	Nyssaceae	STREET			1
<i>Fraxinus americana</i>	USA	North America	Oleaceae	ARBG	1992	Eastwoodhill	134
<i>Fraxinus americana</i>	USA	North America	Oleaceae	MANUKAU			1
<i>Fraxinus americana</i>	USA	North America	Oleaceae	NOTABLE			1
<i>Fraxinus angustifolia</i>	Europe, Africa	Europe, Africa	Oleaceae	HAYMAN			1
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	WESTERN			1
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	HAYMAN			1
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	DEVONPORT			2
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	CORNWALL			1
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	ALBERT			8
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	STREET			10
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	MANUKAU			2
<i>Fraxinus excelsior</i>	Europe	Europe	Oleaceae	SHORE			16
<i>Fraxinus excelsior</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	MANUKAU			1
<i>Fraxinus excelsior</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	ARBG	1978	Duncan & Davies	1
<i>Fraxinus excelsior</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	ARBG	1981	ARBG Nursery	2
<i>Fraxinus excelsior</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	UNI			8

<i>Fraxinus excelsior</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	STREET			1
<i>Fraxinus excelsior</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	NOTABLE			3
<i>Fraxinus excelsior</i> 'Jaspidea'	Horticultural	Horticultural	Oleaceae	CORNWALL			1
<i>Fraxinus excelsior</i> 'Pendula'	Horticultural	Horticultural	Oleaceae	UNI			1
<i>Fraxinus griffithii</i> (bracteata Hemsl)	China, Philippines	Asia	Oleaceae	ARBG	1992	Hamilton City C.	4
<i>Fraxinus ornus</i>	S Europe, Asia min	Europe, Asia	Oleaceae	CORNWALL			1
<i>Fraxinus ornus</i>	S Europe, Asia min	Europe, Asia	Oleaceae	WINNI			1
<i>Fraxinus ornus</i>	S Europe, Asia min	Europe, Asia	Oleaceae	CEMETERY			3
<i>Fraxinus ornus</i>	S Europe, Asia min	Europe, Asia	Oleaceae	STREET			52
<i>Fraxinus ornus</i>	S Europe, Asia min	Europe, Asia	Oleaceae	MANUKAU			1
<i>Fraxinus ornus</i>	S Europe, Asia min	Europe, Asia	Oleaceae	NOTABLE			2
<i>Fraxinus oxycarpa</i> (angustifolia)	SEur, NAfr, Asia mi	Europe, Asia, Afri	Oleaceae	UNITEC	Young		6
<i>Fraxinus oxycarpa</i> (angustifolia)	SEur, NAfr, Asia mi	Europe, Asia, Afri	Oleaceae	UNITEC	Semi M		2
<i>Fraxinus oxycarpa</i> (angustifolia)	SEur, NAfr, Asia mi	Europe, Asia, Afri	Oleaceae	UNITEC	Mature		1905
<i>Fraxinus oxycarpa</i> (angustifolia)	SEur, NAfr, Asia mi	Europe, Asia, Afri	Oleaceae	MANUKAU			96
<i>Fraxinus oxycarpa</i> (angustifolia)	SEur, NAfr, Asia mi	Europe, Asia, Afri	Oleaceae	STREET			5
<i>Fraxinus oxycarpa</i> 'Aurea'	Horticultural	Horticultural	Oleaceae	MANUKAU			1
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	UNITEC	Young		8
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	VICTORIA			1
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	CORNWALL			17
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	WINNI			33
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	STREET			5
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	UNI			1
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Horticultural	Horticultural	Oleaceae	DOMAIN			2
<i>Fraxinus pensylvanica</i>	USA	North America	Oleaceae	STREET			1
<i>Fraxinus retusa</i>	USA	North America	Oleaceae	ARBG	1997	Caves Tree Nurser	1
<i>Fraxinus sieboldiana</i> (mariesii)	China	Asia	Oleaceae	ARBG	1998	Mark Jury	5
<i>Fraxinus uhdei</i>	Central America	Central America	Oleaceae	CORNWALL			1
<i>Ligustrum japonicum</i>	Japan	Asia	Oleaceae	VICTORIA			1
<i>Ligustrum lucidum</i>	China, Korea, Japan	Asia	Oleaceae	DOMAIN			1
<i>Ligustrum lucidum</i>	China, Korea, Japan	Asia	Oleaceae	CELIA			1
<i>Ligustrum lucidum</i>	China, Korea, Japan	Asia	Oleaceae	WINNI			12
<i>Ligustrum lucidum</i>	China, Korea, Japan	Asia	Oleaceae	STREET			1

<i>Ligustrum ovalifolium</i>	Japan	Asia	Oleaceae	ALBERT		7
<i>Ligustrum ovalifolium</i>	Japan	Asia	Oleaceae	STREET		4
<i>Ligustrum ovalifolium</i> 'Aureum'	Horticultural	Horticultural	Oleaceae	STREET		1
<i>Ligustrum sinense</i>	China	Asia	Oleaceae	MT WELL		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	ALBERT		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	RICHMOND		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	DOMAIN		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	VICTORIA		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	CAMBRIA		259
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	CORNWALL		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	MT WELL		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	WESTERN		2
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	UNI		70
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	STREET		2
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	SHORE		1
<i>Olea europaea</i>	Souther Europe, Afr	Europe, Africa	Oleaceae	NOTABLE		1
<i>Olea europaea</i> 'Africana'	Horticultural	Horticultural	Oleaceae	WINNI		1
<i>Olea europaea</i> 'Africana'	Horticultural	Horticultural	Oleaceae	UNI		1
<i>Osmanthus heterophyllus</i>	Japan, Taiwan	Asia	Oleaceae	STREET		1
<i>Osmanthus heterophyllus</i> 'Variegatus'	Horticultural	Horticultural	Oleaceae	UNI		1
<i>Picconia excelsa</i>	Canary Islands	Africa	Oleaceae?	ST KENTS		1
<i>Phyllocladus alpinus</i>	New Zealand	Australasia	Phyllocladaceae	ORATIA		1
<i>Phyllocladus alpinus</i>	New Zealand	Australasia	Phyllocladaceae	UNI		6
<i>Phyllocladus asplenifolius</i>	New Zealand	Australasia	Phyllocladaceae	CORNWALL		1
<i>Phyllocladus glaucus</i>	New Zealand	Australasia	Phyllocladaceae	UNI		1
<i>Phyllocladus glaucus</i>	New Zealand	Australasia	Phyllocladaceae	CORNWALL		2
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	ORATIA		2
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	UNI		11
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	CORNWALL		1
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	ORATIA		1
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	CENTENNIAL		3
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	WAITAKERE		1
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	WINNI		1

<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	CEMETERY		12
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	MANUKAU		1
<i>Phyllocladus trichomanoides</i>	New Zealand	Australasia	Phyllocladaceae	STREET		1
<i>Phytolacca dioica</i>	Chile	South America	Phytolaccaceae	ALBERT		1
<i>Phytolacca dioica</i>	Chile	South America	Phytolaccaceae	STREET		1
<i>Abies alba</i>	Europe	Europe	Pinaceae	WESTERN		1
<i>Abies concolor</i>	USA Mexico	North America	Pinaceae	CENTENNIAL		1
<i>Abies firma</i>	Japan	Asia	Pinaceae	ARBG	1998 Eric Chamberlain	1
<i>Abies koreana</i>	Korea	Asia	Pinaceae	NOTABLE		1
<i>Abies pinsapo</i>	Spain	Europe	Pinaceae	ARBG	1993 Cedar Lodge	1
<i>Abies pinsapo</i>	Spain	Europe	Pinaceae	CENTENNIAL		1
<i>Abies spp.</i>	Horticultural	Horticultural	Pinaceae	ALBERT		2
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	UNITEC	Mature	1
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	SPRINGS		1
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	CELIA		1
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	DOMAIN		3
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	STREET		1
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	UNI		1
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	SHORE		1
<i>Cedrus atlantica</i>	NW Africa	Africa	Pinaceae	NOTABLE		1
<i>Cedrus atlantica</i> 'Glauca Pendula'	Horticultural	Horticultural	Pinaceae	DEVONPORT		1
<i>Cedrus atlantica</i> 'Glauca'	Horticultural	Horticultural	Pinaceae	GOVH	1939	1
<i>Cedrus atlantica</i> 'Glauca'	Horticultural	Horticultural	Pinaceae	ALBERT		1
<i>Cedrus atlantica</i> 'Glauca'	Horticultural	Horticultural	Pinaceae	CORNWALL		1
<i>Cedrus atlantica</i> 'Glauca'	Horticultural	Horticultural	Pinaceae	WINNI		1
<i>Cedrus atlantica</i> 'Glauca'	Horticultural	Horticultural	Pinaceae	STREET		1
<i>Cedrus atlantica</i> 'Glauca'	Horticultural	Horticultural	Pinaceae	NOTABLE		3
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	GOVH	1939	2
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	UNITEC	Semi M	2
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	UNITEC	Mature	8
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	ALBERT		1
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	SPRINGS		1
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	DOMAIN		66

<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	STREET			1
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	CENTENNIAL			4
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	WILSON			38
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	CORNWALL			1
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	WINNI			1
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	SHORE			1
<i>Cedrus deodara</i>	Himalaya	Asia	Pinaceae	NOTABLE			1
<i>Cedrus libani</i>	Lebanon	Asia	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Cedrus libani</i>	Lebanon	Asia	Pinaceae	WESTERN			1
<i>Cedrus libani</i>	Lebanon	Asia	Pinaceae	DOMAIN			2
<i>Cedrus libani</i>	Lebanon	Asia	Pinaceae	SHORE			1
<i>Cedrus libani</i> 'Sargentii'	Horticultural	Horticultural	Pinaceae	ARBG	1988	Cedar Lodge	2
<i>Larix decidua</i>	Europe (Continental)	Europe	Pinaceae	STREET			1
<i>Picea abies</i>	Europe	Europe	Pinaceae	NOTABLE			1
<i>Picea abies</i> 'Globosa'	Horticultural	Horticultural	Pinaceae	ARBG	1998	Eric Chamberlain	1
<i>Picea abies</i> 'Gregoryana'	Horticultural	Horticultural	Pinaceae	ARBG	1998	Eric Chamberlain	1
<i>Picea abies</i> 'Humilis'	Horticultural	Horticultural	Pinaceae	ARBG	1998	Eric Chamberlain	1
<i>Picea abies</i> 'Nidiformis'	Horticultural	Horticultural	Pinaceae	ARBG	1998	Eric Chamberlain	1
<i>Picea abies</i> 'Olendorfi'	Horticultural	Horticultural	Pinaceae	ARBG	1993	Wholesale Tree Co.	1
<i>Picea abies</i> 'Procumbens'	Horticultural	Horticultural	Pinaceae	ARBG	1998	Eric Chamberlain	1
<i>Picea asperata</i>	China	Asia	Pinaceae	DOMAIN			1
<i>Picea brachytyla</i>	China	Asia	Pinaceae	ARBG	1998	Cedar Lodge	1
<i>Picea brewerana</i>	USA	North America	Pinaceae	ALBERT			1
<i>Picea glauca</i>	Canada, N USA	North America	Pinaceae	ARBG	1993	Cedar Lodge	1
<i>Picea glauca</i>	Canada, N USA	North America	Pinaceae	STREET			1
<i>Picea glauca</i> 'Conica Glauca'	Horticultural	Horticultural	Pinaceae	EDEN	1979 +		2
<i>Picea omorika</i>	Serbia	Europe	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Picea omorika</i>	Serbia	Europe	Pinaceae	UNI			1
<i>Picea orientalis</i>	Caucasus, Asia minor	Asia	Pinaceae	ARBG	1988	Cedar Lodge	1
<i>Picea orientalis</i>	Caucasus, Asia minor	Asia	Pinaceae	CENTENNIAL			1
<i>Picea pungens</i> 'Koster'	Horticultural	Horticultural	Pinaceae	CENTENNIAL			1
<i>Picea pungens</i> 'Moerheimii'	Horticultural	Horticultural	Pinaceae	ARBG	1995	Caves Tree Nursery	1
<i>Picea sitchensis</i>	Coastal W N America	North America	Pinaceae	ARBG	1981	Cedar Lodge	1

<i>Picea sitchensis</i>	Coastal W N America	North America	Pinaceae	HAYMAN			1
<i>Picea sitchensis</i>	Coastal W N America	North America	Pinaceae	CENTENNIAL			1
<i>Picea smithiana (morinda)</i>	Himalaya	Asia	Pinaceae	ARBG	1993	Cedar Lodge	1
<i>Picea smithiana (morinda)</i>	Himalaya	Asia	Pinaceae	GOVT	1909		1
<i>Picea smithiana (morinda)</i>	Himalaya	Asia	Pinaceae	WESTERN			1
<i>Pinus aristata</i>	USA	North America	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Pinus armandii</i>	China	Asia	Pinaceae	ARBG	1998	Mark Jury	1
<i>Pinus bungeana</i>		Asia	Pinaceae	ARBG	1995	Top Trees Nursery	1
<i>Pinus canariensis</i>	Canaries	Europe	Pinaceae	ARBG	1993	Cedar Lodge	1
<i>Pinus canariensis</i>	Canaries	Europe	Pinaceae	WESTERN			2
<i>Pinus canariensis</i>	Canaries	Europe	Pinaceae	ALBERT			1
<i>Pinus canariensis</i>	Canaries	Europe	Pinaceae	DOMAIN			1
<i>Pinus canariensis</i>	Canaries	Europe	Pinaceae	SPRINGS			1
<i>Pinus canariensis</i>	Canaries	Europe	Pinaceae	NOTABLE			1
<i>Pinus chiapensis (strobilus chiapensis)</i>	Mexico, Guatemala	North America	Pinaceae	ARBG	1998	Cedar Lodge	1
<i>Pinus coulteri</i>	Mexico	North America	Pinaceae	ARBG	1988	Cedar Lodge	1
<i>Pinus coulteri</i>	Mexico	North America	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Pinus coulteri</i>	Mexico	North America	Pinaceae	CENTENNIAL			1
<i>Pinus culminicola</i>	Mexico	North America	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Pinus densiflora</i>	Japan, Korea	Asia	Pinaceae	HAYMAN			1
<i>Pinus densiflora</i>	Japan, Korea	Asia	Pinaceae	WINNI			1
<i>Pinus edulis (cembroides var. edulis)</i>	N America	North America	Pinaceae	ARBG	1990	Tree Dimension	1
<i>Pinus edulis (cembroides var. edulis)</i>	N America	North America	Pinaceae	ARBG	1993	Tree Dimension	1
<i>Pinus elliotii</i>	SE USA	North America	Pinaceae	DOMAIN			1
<i>Pinus elliotii</i>	SE USA	North America	Pinaceae	CENTENNIAL			1
<i>Pinus halepensis</i>	Portugal to Afghanistan	Europe, Asia	Pinaceae	ARBG	1983		1
<i>Pinus halepensis</i>	Portugal to Afghanistan	Europe, Asia	Pinaceae	HAYMAN			1
<i>Pinus maximartinezii</i>	Mexico	North America	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Pinus montezumae</i>	Mexico	North America	Pinaceae	ARBG	1994	Glyn Church	1
<i>Pinus monticola</i>	N America	North America	Pinaceae	ARBG	1988	Cedar Lodge	1
<i>Pinus mugo (montana)</i>	Europe, Balkans	Europe	Pinaceae	ARBG	1998	Eric Chamberlain	1
<i>Pinus mugo (montana)</i>	Europe, Balkans	Europe	Pinaceae	UNI			1
<i>Pinus mugo (montana)</i>	Europe, Balkans	Europe	Pinaceae	MANUKAU			4

<i>Pinus mugo</i> 'Gnom'	Horticultural	Horticultural	Pinaceae	EDEN	1994 +		5
<i>Pinus mugo</i> 'Mops'	Horticultural	Horticultural	Pinaceae	ARBG	1993	Wholesale Tree Co.	1
<i>Pinus mugo</i> var. <i>pumilo</i>	Horticultural	Horticultural	Pinaceae	ARBG	1993	Tree Dimension	1
<i>Pinus mugo</i> var. <i>pumilo</i>	Horticultural	Horticultural	Pinaceae	ARBG	1998	Tree Dimension	1
<i>Pinus muricata</i>	W N America	North America	Pinaceae	ARBG	1998	Cedar Lodge	1
<i>Pinus muricata</i>	W N America	North America	Pinaceae	HAYMAN			1
<i>Pinus nigra</i>	Austria	Europe	Pinaceae	WAITAKERE			1
<i>Pinus nigra</i>	Austria	Europe	Pinaceae	UNI			1
<i>Pinus nigra</i> 'Pyramidalis'	Horticultural	Horticultural	Pinaceae	ARBG	1994	Cedar Lodge	4
<i>Pinus palustris</i>	N America	North America	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Pinus palustris</i>	N America	North America	Pinaceae	CENTENNIAL			1
<i>Pinus parviflora</i>	Japan	Asia	Pinaceae	ALBERT			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	ARBG	1986		1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	ARBG	1988	Cedar Lodge	1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	HAYMAN			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	SPRINGS			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	DOMAIN			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	CENTENNIAL			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	CORNWALL			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	MANUKAU			1
<i>Pinus patula</i>	Mexico	North America	Pinaceae	WINNI			15
<i>Pinus patula</i>	Mexico	North America	Pinaceae	STREET			1
<i>Pinus patula</i> (topped)	Mexico	North America	Pinaceae	STREET			8
<i>Pinus peuce</i>	Albania, Greece	Europe	Pinaceae	HAYMAN			1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	UNITEC	Mature		1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	EDEN	1989 +		1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	WILSON			1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	CENTENNIAL			1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	MANUKAU			1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	CORNWALL			6
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	CEMETERY			2
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	CHELSEA			1
<i>Pinus pinaster</i>	Meditt	Europe	Pinaceae	NOTABLE			1

<i>Pinus pinceana</i>	Mexico	North America	Pinaceae	ARBG	1992	Lady Anne Berry	1
<i>Pinus pinceana</i>	Mexico	North America	Pinaceae	ARBG	1994	Cedar Lodge	1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	WESTERN			1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	HAYMAN			1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	DOMAIN			1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	OPANUKU			1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	CENTENNIAL			1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	CORNWALL			1
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	STREET			2
<i>Pinus pinea</i>	Meditt	Europe	Pinaceae	NOTABLE			1
<i>Pinus ponderosa</i>	W N America	North America	Pinaceae	ARBG	1998	Cedar Lodge	1
<i>Pinus ponderosa</i>	W N America	North America	Pinaceae	MANUKAU			1
<i>Pinus ponderosa</i>	W N America	North America	Pinaceae	CENTENNIAL			2
<i>Pinus ponderosa</i>	W N America	North America	Pinaceae	STREET			1
<i>Pinus pumila</i>	Siberia and Japan	Asia	Pinaceae	ARBG	1990	Tree Dimension	1
<i>Pinus radiata</i>	USA	North America	Pinaceae	UNITEC	Pmat		1
<i>Pinus radiata</i>	USA	North America	Pinaceae	WESTERN			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	CHELSEA			3
<i>Pinus radiata</i>	USA	North America	Pinaceae	ALBERT			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	VICTORIA			3
<i>Pinus radiata</i>	USA	North America	Pinaceae	RICHMOND			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	MANUKAU			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	WILSON			16
<i>Pinus radiata</i>	USA	North America	Pinaceae	HAYMAN			8
<i>Pinus radiata</i>	USA	North America	Pinaceae	DOMAIN			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	SPRINGS			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	HIGHWIC	863-1900		1
<i>Pinus radiata</i>	USA	North America	Pinaceae	CENTENNIAL			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	CORNWALL			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	MT WELL			242
<i>Pinus radiata</i>	USA	North America	Pinaceae	WINNI			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	CEMETERY			1
<i>Pinus radiata</i>	USA	North America	Pinaceae	STREET			1

<i>Pinus radiata</i>	USA	North America	Pinaceae	NOTABLE			9
<i>Pinus radiata</i> 'Aurea'	Horticultural	Horticultural	Pinaceae	ARBG	1988	Cedar Lodge	1
<i>Pinus roxburgii</i>	Himalaya	Asia	Pinaceae	ARBG	1983	not recorded	2
<i>Pinus roxburgii</i>	Himalaya	Asia	Pinaceae	ARBG	1988	Cedar Lodge	2
<i>Pinus roxburgii</i>	Himalaya	Asia	Pinaceae	ARBG	1993	Dene's Garden Way	1
<i>Pinus roxburgii</i>	Himalaya	Asia	Pinaceae	DOMAIN			1
<i>Pinus strobiformis</i>	Mexico	North America	Pinaceae	ARBG	1993	Wholesale Tree Co.	1
<i>Pinus sylvestris</i>	Europe	Europe	Pinaceae	ARBG	1993	Cedar Lodge	1
<i>Pinus tabuliformis</i> (sinensis)	China	Asia	Pinaceae	ARBG	1993	Cedar Lodge	1
<i>Pinus taeda</i>	USA	North America	Pinaceae	HAYMAN			1
<i>Pinus taeda</i>	USA	North America	Pinaceae	DOMAIN			1
<i>Pinus thunbergii</i>	Japan	Asia	Pinaceae	ARBG	1997	Caves Tree Nurser	1
<i>Pinus thunbergii</i>	Japan	Asia	Pinaceae	HAYMAN			1
<i>Pinus thunbergii</i>	Japan	Asia	Pinaceae	DOMAIN			1
<i>Pinus torreyana</i>	S California	North America	Pinaceae	ARBG	1995	Top Trees Nursery	1
<i>Pinus wallichiana</i> (griffithii)	Himalaya	Asia	Pinaceae	ARBG	1995	Top Trees Nursery	1
<i>Pinus wallichiana</i> (griffithii)	Himalaya	Asia	Pinaceae	ARBG	1997	Top Trees Nursery	1
<i>Pinus wallichiana</i> (griffithii)	Himalaya	Asia	Pinaceae	ARBG	1998	Caves Tree Nurser	1
<i>Pseudolarix amabilis</i>	S + E China	Asia	Pinaceae	CENTENNIAL			1
<i>Pseudotsuga menzeizii</i>	W USA + Canada	North America	Pinaceae	CORNWALL			1
<i>Pseudotsuga menzeizii</i>	W USA + Canada	North America	Pinaceae	STREET			1
<i>Macropiper excelsum</i>	Australia, New Zela	Australasia	Piperaceae	CORNWALL			1
<i>Macropiper excelsum</i>	Australia, New Zela	Australasia	Piperaceae	UNI			1
<i>Macropiper excelsum</i>	Australia, New Zela	Australasia	Piperaceae	STREET			1
<i>Hymenosporum flavum</i>	Australia	Australasia	Pittosporaceae	HIGHWIC			62
<i>Hymenosporum flavum</i>	Australia	Australasia	Pittosporaceae	MANUKAU			28
<i>Hymenosporum flavum</i>	Australia	Australasia	Pittosporaceae	STREET			1
<i>Hymenosporum flavum</i>	Australia	Australasia	Pittosporaceae	NOTABLE			1
<i>Pittosporum bracteolatum</i>	Norfolk Islands	Australasia	Pittosporaceae	DOMAIN			1
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	ALBERT			78
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	CORNWALL			1
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	VICTORIA			257
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	MANUKAU			1

<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	CEMETERY			1
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	WINNI			1
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	UNI			144
<i>Pittosporum crassifolium</i>	New Zealand	Australasia	Pittosporaceae	STREET			4
<i>Pittosporum crassifolium</i> 'Variegatum'	Horticultural	Horticultural	Pittosporaceae	MANUKAU			1
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	HAYMAN			1
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	VICTORIA			137
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	CORNWALL			1
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	CEMETERY			901
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	MANUKAU			4
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	UNI			129
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	MANUKAU			429
<i>Pittosporum eugenioides</i>	New Zealand	Australasia	Pittosporaceae	STREET			2
<i>Pittosporum hutonianum</i>	New Zealand	Australasia	Pittosporaceae	MANUKAU			1
<i>Pittosporum obcordatum</i>	New Zealand	Australasia	Pittosporaceae	DOMAIN			12
<i>Pittosporum tenuifolium</i>	New Zealand	Australasia	Pittosporaceae	CORNWALL			1
<i>Pittosporum tenuifolium</i>	New Zealand	Australasia	Pittosporaceae	CEMETERY			1
<i>Pittosporum tenuifolium</i>	New Zealand	Australasia	Pittosporaceae	WINNI			3
<i>Pittosporum tenuifolium</i>	New Zealand	Australasia	Pittosporaceae	UNI			774
<i>Pittosporum tenuifolium</i>	New Zealand	Australasia	Pittosporaceae	MANUKAU			313
<i>Pittosporum tenuifolium</i>	New Zealand	Australasia	Pittosporaceae	STREET			408
<i>Pittosporum tenuifolium</i> 'Variegatum'	Horticultural	Horticultural	Pittosporaceae	MANUKAU			3
<i>Pittosporum tenuifolium</i> 'Variegatum'	Horticultural	Horticultural	Pittosporaceae	STREET			1
<i>Pittosporum umbellatum</i>	New Zealand	Australasia	Pittosporaceae	CORNWALL			1
<i>Pittosporum umbellatum</i>	New Zealand	Australasia	Pittosporaceae	WINNI			2
<i>Pittosporum umbellatum</i>	New Zealand	Australasia	Pittosporaceae	STREET			38
<i>Platanus mexicana</i>	Mexico	North America	Platanaceae	ARBG	1994	Glyn Church	1
<i>Platanus occidentalis</i>	E + S N America	North America	Platanaceae	DEVONPORT			1
<i>Platanus occidentalis</i>	E + S N America	North America	Platanaceae	WINNI			1
<i>Platanus occidentalis</i> 'Insularis'	Horticultural	Horticultural	Platanaceae	UNI			328
<i>Platanus orientalis</i>	Europe, Asia	Asia	Platanaceae	MANUKAU			2
<i>Platanus orientalis</i>	Europe, Asia	Asia	Platanaceae	STREET			1
<i>Platanus orientalis</i>	Europe, Asia	Asia	Platanaceae	NOTABLE			1

<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	DEVONPORT		3
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	ALBERT		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	VICTORIA		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	RICHMOND		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	HAYMAN		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	CELIA		110
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	CORNWALL		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	MT WELL		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	WINNI		8
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	WESTERN		2
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	UNI		76
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	STREET		29
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	SHORE		1
<i>Platanus x acerifolia</i>	USA / Europe	North America, Ex	Platanaceae	NOTABLE		106
<i>Platanus x acerifolia (orientalis x occidentalis)</i>	USA / Europe	North America, Ex	Platanaceae	UNITEC	young	9
<i>Platanus x acerifolia (pollarded)</i>	USA / Europe	North America, Ex	Platanaceae	STREET		3
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	WESTERN		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	DOMAIN		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	CENTENNIAL		6
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	WAITAKETE1		34
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	CORNWALL		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	WINNI		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	ORATIA		3
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	MANUKAU		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	CEMETERY		2
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	UNI		
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	STREET		11
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	SHORE		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	CHELSEA		1
<i>Dacrycarpus dacrydioides</i>	New Zealand	Australasia	Podocarpaceae	NOTABLE		1
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	UNITEC	Semi M	3
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	UNITEC	Mature	1
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	HIGHWIC	1900-53	1

<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	DOMAIN		1	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	ORATIA		6	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	MANUKAU		1	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	CENTENNIAL		14	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	WAITAKETE1		1	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	CHELSEA		173	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	CORNWALL		1	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	WINNI		11	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	STREET		1	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	CEMETERY		3	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	UNI		8	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	SHORE		1	
<i>Dacrydium cupressinum</i>	New Zealand	Australasia	Podocarpaceae	NOTABLE		1	
<i>Podocarpus acutifolius</i>	New Zealand	Australasia	Podocarpaceae	MARC	1987	Forever Green	4
<i>Podocarpus acutifolius</i>	New Zealand	Australasia	Podocarpaceae	CORNWALL		1	
<i>Podocarpus acutifolius</i>	New Zealand	Australasia	Podocarpaceae	ORATIA	1989		1
<i>Podocarpus alpinus (lawrencii)</i>	Tasmania	Australasia	Podocarpaceae	ARBG	1993	Cedar Lodge	1
<i>Podocarpus cunninghamii</i>	Tasmania	Australasia	Podocarpaceae	CORNWALL			1
<i>Podocarpus elatus</i>	Australia	Australasia	Podocarpaceae	ST KENTS			1
<i>Podocarpus elatus</i>	Australia	Australasia	Podocarpaceae	ALBERT			1
<i>Podocarpus elatus</i>	Australia	Australasia	Podocarpaceae	DOMAIN			1
<i>Podocarpus elatus</i>	Australia	Australasia	Podocarpaceae	NOTABLE			1
<i>Podocarpus elongatus</i>	Africa, Australia	Africa, Australia	Podocarpaceae	ARBG	1985	Hunua Nurseries	1
<i>Podocarpus elongatus</i>	Africa, Australia	Africa, Australia	Podocarpaceae	ARBG	1998	Silverhill Seeds	1
<i>Podocarpus falcatus</i>	SAfrica	Africa	Podocarpaceae	ARBG	1996	Steve Benham	1
<i>Podocarpus ferrugineus</i>	New Zealand	Australasia	Podocarpaceae	MARC	1987	Platts Nursery	1
<i>Podocarpus ferrugineus</i>	New Zealand	Australasia	Podocarpaceae	CHELSEA			1
<i>Podocarpus ferrugineus</i>	New Zealand	Australasia	Podocarpaceae	ORATIA	1983	Waitakere Ranges	2
<i>Podocarpus gracilior</i>	Tropical Africa	Africa	Podocarpaceae	UNI			6
<i>Podocarpus gracilior</i>	Tropical Africa	Africa	Podocarpaceae	MANUKAU			4
<i>Podocarpus gracilior</i>	Tropical Africa	Africa	Podocarpaceae	STREET			1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	MARC	1987	Oratia Native Pl.	1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1995	Platts Nursery	1

<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1995	Platts Nursery	1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	GOVH	1899		1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	CHELSEA			1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	CAMBRIA			1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	ORATIA	1996		1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	CENTENNIAL			1
<i>Podocarpus hallii</i>	New Zealand	Australasia	Podocarpaceae	CEMETERY			1
<i>Podocarpus henkellii</i>	S Africa	Africa	Podocarpaceae	ARBG	1994	Cedar Lodge	1
<i>Podocarpus henkellii</i>	S Africa	Africa	Podocarpaceae	ARBG	1994	Mark Jury	1
<i>Podocarpus henkellii</i>	S Africa	Africa	Podocarpaceae	ARBG	1998	Silverhill Seeds	1
<i>Podocarpus henkellii</i>	S Africa	Africa	Podocarpaceae	DOMAIN			1
<i>Podocarpus henkellii</i>	S Africa	Africa	Podocarpaceae	STREET			1
<i>Podocarpus latifolius</i>	S Africa	Africa	Podocarpaceae	ARBG	1985	Hunua Nurseries	1
<i>Podocarpus latifolius</i>	S Africa	Africa	Podocarpaceae	ARBG	1998	Silverhill Seeds	1
<i>Podocarpus lawrencei</i> see <i>P.alpinus</i>	Tasmania	Australasia	Podocarpaceae	ARBG	1992	Duncan & Davies	1
<i>Podocarpus lawrencei</i> see <i>P.alpinus</i>	Tasmania	Australasia	Podocarpaceae	ARBG	1994	Cedar Lodge	1
<i>Podocarpus lawrencei</i> see <i>P.alpinus</i>	Tasmania	Australasia	Podocarpaceae	ARBG	1995	Platts Nursery	1
<i>Podocarpus macrophyllus</i>	China, Japan	Asia	Podocarpaceae	ARBG	1985	Hunua Nurseries	1
<i>Podocarpus macrophyllus</i>	China, Japan	Asia	Podocarpaceae	ARBG	1994	Cedar Lodge	1
<i>Podocarpus macrophyllus</i>	China, Japan	Asia	Podocarpaceae	UNI			1
<i>Podocarpus macrophyllus</i>	China, Japan	Asia	Podocarpaceae	STREET			1
<i>Podocarpus macrophyllus</i> 'Augustifolius'	Horticultural	Horticultural	Podocarpaceae	STREET			1
<i>Podocarpus macrophyllus</i> 'Maki'	Horticultural	Horticultural	Podocarpaceae	ARBG	1993	Cedar Lodge	1
<i>Podocarpus macrophyllus</i> 'Maki'	Horticultural	Horticultural	Podocarpaceae	EDEN	1989 +		1
<i>Podocarpus macrophyllus</i> 'Maki'	Horticultural	Horticultural	Podocarpaceae	STREET			1
<i>Podocarpus nivalis</i>	New Zealand	Australasia	Podocarpaceae	MARC	1986	Platts Nursery	1
<i>Podocarpus nivalis</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1982	not recorded	1
<i>Podocarpus nivalis</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1992	Platts Nursery	1
<i>Podocarpus nivalis</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1994	Wholesale Tree Co.	1
<i>Podocarpus nivalis</i>	New Zealand	Australasia	Podocarpaceae	ORATIA	1996	Taupo	2
<i>Podocarpus nivalis</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1995	Platts Nursery	1
<i>Podocarpus nivalis</i> 'Bronze'	Horticultural	Horticultural	Podocarpaceae	ARBG	1988	Cedar Lodge	1
<i>Podocarpus nivalis</i> 'Jacks Pass'	Horticultural	Horticultural	Podocarpaceae	ARBG	1988	Cedar Lodge	1

<i>Podocarpus salignus</i> (<i>chilinus</i>)	Chile	South America	Podocarpaceae	ARBG	1985		1
<i>Podocarpus spicatus</i>	New Zealand	Australasia	Podocarpaceae	MARC	1987	Platts Nursery	1
<i>Podocarpus spicatus</i>	New Zealand	Australasia	Podocarpaceae	ORATIA	1987	Pureora	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ST KENTS			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	UNITEC	Young		7
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	UNITEC	Mature		1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	MARC	1984	Platts Nursery	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1981	?	2
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1983	?	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1991	Joy Plants	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1994	Joy Plants	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1995	Platts Nursery	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ARBG	1996	ARBG Nursery	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	GOVH	1949		1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	GOVH	1919		3
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	GOVH	1899		7
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	WESTERN			2
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ALBERT			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	EDEN	1979		1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	RICHMOND			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	HAYMAN			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	DOMAIN			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ORATIA	1949	Waitakere Ranges	1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	ALBERTON			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	CELIA			2
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	HIGHWIC	863-1900		1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	HIGHWIC	1900-53		1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	HIGHWIC	1953-78		1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	DEVONPORT			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	CENTENNIAL			21
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	WAITAKETE1			99
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	CORNWALL			1
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	MT WELL			1

<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	WINNI		1	
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	CEMETERY		9	
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	UNI		231	
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	MANUKAU		104	
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	STREET		56	
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	SHORE		1	
<i>Podocarpus totara</i>	New Zealand	Australasia	Podocarpaceae	NOTABLE		1	
<i>Podocarpus totara</i> 'Albany Gold'	Horticultural	Horticultural	Podocarpaceae	ARBG	1995	Platts Nursery	2
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	MARC	1994	Platts Nursery	1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	ARBG	1978		1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	ARBG	1981		1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	ARBG	1984		1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	EDEN	1979		59
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	VICTORIA			1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	MANUKAU			1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	CAMBRIA			4
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	WINNI			1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	UNI			2
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	ORATIA	1989	Albany	1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	STREET			1
<i>Podocarpus totara</i> 'Aurea'	Horticultural	Horticultural	Podocarpaceae	SHORE			1
<i>Podocarpus totara</i> 'Pendula'	Horticultural	Horticultural	Podocarpaceae	MARC	1987	Platts Nursery	1
<i>Podocarpus totara</i> 'Pendula'	Horticultural	Horticultural	Podocarpaceae	ORATIA	1974		1
<i>Podocarpus totara</i> 'Pendula'	Horticultural	Horticultural	Podocarpaceae	ARBG	1995	Platts Nursery	9
<i>Prumnopitys ferruginea</i>	New Zealand	Australasia	Podocarpaceae	CORNWALL			1
<i>Prumnopitys ferruginea</i>	New Zealand	Australasia	Podocarpaceae	UNI			3
<i>Prumnopitys ferruginea</i>	New Zealand	Australasia	Podocarpaceae	STREET			2
<i>Prumnopitys taxifolia</i>	New Zealand	Australasia	Podocarpaceae	CORNWALL			1
<i>Prumnopitys taxifolia</i>	New Zealand	Australasia	Podocarpaceae	CENTENNIAL			2
<i>Prumnopitys taxifolia</i>	New Zealand	Australasia	Podocarpaceae	UNI			1
<i>Prumnopitys taxifolia</i>	New Zealand	Australasia	Podocarpaceae	STREET			26
<i>Polygala myrtifolia</i>	Safrica	Africa	Polygalaceae	MANUKAU			9
<i>Polygala myrtifolia</i>	Safrica	Africa	Polygalaceae	STREET			9

<i>Banksia collina</i>	Australia	Australasia	Proteaceae	MANUKAU			41
<i>Banksia ericifolia</i>	Australia	Australasia	Proteaceae	MANUKAU			227
<i>Banksia integrifolia</i>	Australia	Australasia	Proteaceae	MANUKAU			1
<i>Banksia integrifolia</i>	Australia	Australasia	Proteaceae	UNITEC	Mature		22
<i>Banksia integrifolia</i>	Australia	Australasia	Proteaceae	STREET			3
<i>Banksia integrifolia</i>	Australia	Australasia	Proteaceae	UNI			1
<i>Banksia serrata</i>	Australia	Australasia	Proteaceae	STREET			32
<i>Grevillea asplenifolia</i>	Australia	Australasia	Proteaceae	MANUKAU			2
<i>Grevillea banksii</i>	Australia	Australasia	Proteaceae	STREET			1
<i>Grevillea hilliana</i>	Australia	Australasia	Proteaceae	CELIA			3
<i>Grevillea jenkinsii</i>	Australia	Australasia	Proteaceae	MANUKAU			4
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	WESTERN			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	ALBERT			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	RICHMOND			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	HAYMAN			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	VICTORIA			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	DOMAIN			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	SPRINGS			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	CELIA			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	CAMBRIA			107
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	STREET			2
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	CORNWALL			332
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	MANUKAU			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	MT WELL			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	WINNI			4
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	UNI			11
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	SHORE			1
<i>Grevillea robusta</i>	Australia	Australasia	Proteaceae	NOTABLE			5
<i>Hakea laurina</i>	Australia	Australasia	Proteaceae	MANUKAU			1
<i>Hakea suaveolens</i>	Australia	Australasia	Proteaceae	DOMAIN			2
<i>Knightia excelsa</i>	Australia	Australasia	Proteaceae	ALBERT			1
<i>Knightia excelsa</i>	Australia	Australasia	Proteaceae	VICTORIA			1
<i>Knightia excelsa</i>	Australia	Australasia	Proteaceae	DOMAIN			1

<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	CENTENNIAL		117
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	CORNWALL		1
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	WINNI		1
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	CEMETERY		11
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	MANUKAU		1
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	ORATIA		5
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	UNI		1
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	CHELSEA		22
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	STREET		2
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	SHORE		1
<i>Knightsia excelsa</i>	Australia	Australasia	Proteaceae	NOTABLE		1
<i>Macadamia integrifolia</i>	Australia	Australasia	Proteaceae	CELA		2
<i>Macadamia integrifolia</i>	Australia	Australasia	Proteaceae	SHORE		1
<i>Macadamia integrifolia</i>	Australia	Australasia	Proteaceae	ST KENTS		1
<i>Macadamia tetraphylla</i>	Australia	Australasia	Proteaceae	DOMAIN		1
<i>Macadamia tetraphylla</i>	Australia	Australasia	Proteaceae	WINNI		5
<i>Macadamia tetraphylla</i>	Australia	Australasia	Proteaceae	UNI		2
<i>Persoonia toru</i>	New Zealand	Australasia	Proteaceae	MANUKAU		2
<i>Stenocarpus salignus</i>	Australia	Australasia	Proteaceae	ALBERT		1
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	ALBERT		1
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	DOMAIN		4
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	CORNWALL		32
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	MANUKAU		6
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	UNI		8
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	STREET		1
<i>Stenocarpus sinuatus</i>	Australia	Australasia	Proteaceae	NOTABLE		1
<i>Hovenia dulcis</i>	China, Korea, Japan	Asia	Rhamnaceae	SPRINGS		1
<i>Pomaderris apetala</i>	Australia	Australasia	Rhamnaceae	WINNI		18
<i>Pomaderris apetala</i>	Australia	Australasia	Rhamnaceae	CORNWALL		1
<i>Pomaderris kumeraho</i>	Australia, New Zealand	Australasia	Rhamnaceae	VICTORIA		7
<i>Pomaderris kumeraho</i>	Australia, New Zealand	Australasia	Rhamnaceae	MANUKAU		11
<i>Rhamnus alaternus</i>	Mediterranean, Asia	Europe, Asia	Rhamnaceae	MANUKAU		2
<i>Amelanchier canadensis</i>	North America	North America	Rosaceae	UNI		3

<i>Amelanchier lamarkii</i>	uncertain; naturalis	Europe	Rosaceae	UNI		1	
<i>Crataegus monogyna</i>	Europe, Africa	Europe, Africa	Rosaceae	ARBG	1993	1	
<i>Crataegus monogyna</i>	Europe, Africa	Europe, Africa	Rosaceae	RICHMOND		6	
<i>Crataegus monogyna</i>	Europe, Africa	Europe, Africa	Rosaceae	CORNWALL		1	
<i>Crataegus monogyna</i>	Europe, Africa	Europe, Africa	Rosaceae	MT WELL		1	
<i>Crataegus monogyna</i>	Europe, Africa	Europe, Africa	Rosaceae	WINNI		1	
<i>Eriobotrya japonica</i>	Japan, China	Asia	Rosaceae	ALBERT		1	
<i>Eriobotrya japonica</i>	Japan, China	Asia	Rosaceae	CENTENNIAL		1	
<i>Eriobotrya japonica</i>	Japan, China	Asia	Rosaceae	UNI		22	
<i>Eriobotrya japonica</i>	Japan, China	Asia	Rosaceae	MANUKAU		44	
<i>Eriobotrya japonica</i>	Japan, China	Asia	Rosaceae	STREET		1	
<i>Malus</i> 'Charlotte'	Horticultural	Horticultural	Rosaceae	ARBG	1991	Dene's Garden Way	1
<i>Malus</i> 'Crimson Brilliant'	Horticultural	Horticultural	Rosaceae	ARBG	1995	Wholesale Tree Co.	2
<i>Malus</i> 'Golden Hornett'	Horticultural	Horticultural	Rosaceae	ARBG	1988	Duncan & Davies	1
<i>Malus</i> 'Golden Hornett'	Horticultural	Horticultural	Rosaceae	UNI			1
<i>Malus</i> 'Jack Humm'	Horticultural	Horticultural	Rosaceae	MARC	1979	Various trials	1
<i>Malus</i> 'Jack Humm'	Horticultural	Horticultural	Rosaceae	ARBG	1976	Pettits Garden	1
<i>Malus</i> 'Jack Humm'	Horticultural	Horticultural	Rosaceae	ARBG	1988	Duncan & Davies	1
<i>Malus</i> 'Jack Humm'	Horticultural	Horticultural	Rosaceae	ARBG	1991	Wholesale Tree Co.	1
<i>Malus</i> 'Jelly King'	Horticultural	Horticultural	Rosaceae	ARBG	1997	Matthews	1
<i>Malus</i> 'Red Delicious'	Horticultural	Horticultural	Rosaceae	ARBG	1989	Ray Holland	1
<i>Malus</i> 'Strathmore'	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Malus</i> 'Van Eseltine'	Horticultural	Horticultural	Rosaceae	ARBG	1985		1
<i>Malus</i> 'Wrights Scarlet'	Horticultural	Horticultural	Rosaceae	ARBG	1984	Harrison's Trees	1
<i>Malus domestica</i> (pumila)	Europe/Caucasus/	Europe	Rosaceae	UNITEC	Mature		1
<i>Malus domestica</i> (pumila)	Europe/Caucasus/	Europe	Rosaceae	UNI			6
<i>Malus florentina</i>	Italy	Europe	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Malus floribunda</i>	Japan	Asia	Rosaceae	ARBG	1983	Harrison's Trees	1
<i>Malus floribunda</i>	Japan	Asia	Rosaceae	ARBG			1
<i>Malus hupehensis</i>	China	Asia	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Malus ioensis</i> 'Plena'	Horticultural	Horticultural	Rosaceae	ARBG	1976	Pettits Garden	1
<i>Malus sieboldii</i> 'Gorgeous'	Horticultural	Horticultural	Rosaceae	ARBG	1984	Harrison's Trees	1
<i>Malus sieboldii</i> 'Gorgeous'	Horticultural	Horticultural	Rosaceae	ARBG	1987	not recorded	1

<i>Malus sieboldii</i> 'Gorgeous'	Horticultural	Horticultural	Rosaceae	ARBG	1991	Wholesale Tree Co.	1
<i>Malus toringoides</i>	China	Asia	Rosaceae	ARBG	1995	Top Trees Nursery	1
<i>Malus trilobata</i>	Asia	Asia	Rosaceae	ARBG	1989	Palmers	1
<i>Malus tschonoski</i>	Japan	Asia	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Malus x arnoldiana</i> (floribunda x baccata)	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Malus x purpurea</i> 'Eleyi'	Horticultural	Horticultural	Rosaceae	ARBG	1985		1
<i>Malus x robusta</i> (baccata x prunifolia)	Horticultural	Horticultural	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Malus yunnanensis</i>	Yunnan	Asia	Rosaceae	ARBG	1994	Top Trees Nursery	20
<i>Photinia x fraseri</i>	Horticultural	Horticultural	Rosaceae	STREET			53
<i>Photinia x fraseri</i> 'Red Robin'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	WESTERN			8
<i>Photinia serrulata</i>	China	Asia	Rosaceae	STREET			3
<i>Photinia serrulata</i>	China	Asia	Rosaceae	ALBERT			1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	HIGHWIC	1900-53		1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	DOMAIN			1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	CORNWALL			1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	MT WELL			1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	UNI			1
<i>Photinia serrulata</i>	China	Asia	Rosaceae	NOTABLE			6
<i>Photinia serrulata</i>	China	Asia	Rosaceae	CORNWALL			389
<i>Photinia x fraseri</i> 'Robusta'	Horticultural	Horticultural	Rosaceae	MANUKAU			2
<i>Prunus</i> 'Accolade' (sargentii x subhirtella)	Horticultural	Horticultural	Rosaceae	ARBG	1983	Harrison's Trees	1
<i>Prunus</i> 'Accolade' (sargentii x subhirtella)	Horticultural	Horticultural	Rosaceae	ARBG	1988		3
<i>Prunus</i> 'Accolade' (sargentii x subhirtella)	Horticultural	Horticultural	Rosaceae	MANUKAU			1
<i>Prunus</i> 'Pandora' (subhirtella x yedoensis)	Horticultural	Horticultural	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Prunus</i> 'Pandora' (subhirtella x yedoensis)	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Prunus</i> 'Pearly Shadows'	Horticultural	Horticultural	Rosaceae	ARBG	1996	Allenton Nurseries	1
<i>Prunus</i> 'Seaview Beauty'	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	3
<i>Prunus armeniaca</i>	Caucasus	Asia	Rosaceae	MANUKAU			1
<i>Prunus armeniaca</i>	Caucasus	Asia	Rosaceae	STREET			12
<i>Prunus avium</i>	Europe	Europe	Rosaceae	ARBG	1993	Appletons	1
<i>Prunus avium</i> 'Pendula'	Horticultural	Horticultural	Rosaceae	EDEN	1979 +		1
<i>Prunus avium</i> 'Plena'	Horticultural	Horticultural	Rosaceae	ARBG	1983		1

<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	ARBG	1982	Westney Road	1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	ARBG	1984	Jean Veal	1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	ARBG	1987		1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	EDEN	1989 +		1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	VICTORIA			1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	CENTENNIAL			1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	UNI			1
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	MANUKAU			2
<i>Prunus campanulata</i>	Japan	Asia	Rosaceae	SREET			441
<i>Prunus campanulata</i> (Formosan Cherry)	Japan	Asia	Rosaceae	MANUKAU			9
<i>Prunus campanulata</i> 'Felix Jury'	Horticultural	Horticultural	Rosaceae	ARBG	1983	Duncan & Davies	3
<i>Prunus campanulata</i> 'Red Veil'	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Prunus campanulata</i> 'Superba'	Horticultural	Horticultural	Rosaceae	ARBG	1976	Pettit's Garden	1
<i>Prunus campanulata</i> 'Superba'	Horticultural	Horticultural	Rosaceae	ARBG	1978	Pettit's Garden	1
<i>Prunus campanulata</i> 'Superba'	Horticultural	Horticultural	Rosaceae	ARBG	1982		1
<i>Prunus campanulata</i> 'Superba'	Horticultural	Horticultural	Rosaceae	ARBG	1983	Duncan & Davies	1
<i>Prunus campanulata</i> 'Superba'	Horticultural	Horticultural	Rosaceae	UNI			1
<i>Prunus caroliniana</i>	Asia minor	Asia	Rosaceae	ARBG	1990	Mr Hugh ??	1
<i>Prunus cerasifera</i>	Asia minor	Asia	Rosaceae	CORNWALL			1
<i>Prunus cerasifera</i>	Asia minor	Asia	Rosaceae	CEMETERY			10
<i>Prunus cerasifera</i>	Asia minor	Asia	Rosaceae	SREET			1
<i>Prunus cerasifera</i> 'Elvins'	Horticultural	Horticultural	Rosaceae	ARBG	1983	Harrison's Trees	5
<i>Prunus cerasifera</i> 'Elvins'	Horticultural	Horticultural	Rosaceae	ARBG	1984	Jean Veal	2
<i>Prunus cerasifera</i> 'Elvins'	Horticultural	Horticultural	Rosaceae	ARBG	1984		1
<i>Prunus cerasifera</i> 'Elvins'	Horticultural	Horticultural	Rosaceae	ARBG	1986		1
<i>Prunus cerasifera</i> 'Nigra'	Horticultural	Horticultural	Rosaceae	CORNWALL			1
<i>Prunus cerasifera</i> 'Nigra'	Horticultural	Horticultural	Rosaceae	WINNI			1
<i>Prunus cerasifera</i> 'Nigra'	Horticultural	Horticultural	Rosaceae	UNI			1
<i>Prunus cerasifera</i> 'Nigra'	Horticultural	Horticultural	Rosaceae	MANUKAU			2
<i>Prunus cerasifera</i> 'Nigra'	Horticultural	Horticultural	Rosaceae	SREET			556
<i>Prunus cerasifera</i> 'Rosa'	Horticultural	Horticultural	Rosaceae	SREET			7
<i>Prunus cerasifera</i> 'Thundercloud'	Horticultural	Horticultural	Rosaceae	UNI			1
<i>Prunus cerasoides</i>	China	Asia	Rosaceae	ARBG	1992	Eastwoodhill	1

<i>Prunus cerasus</i> 'Rhexii'	Horticultural	Horticultural	Rosaceae	ARBG	1996	Allenton Nurseries	1
<i>Prunus conradinae</i>	China	Asia	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Prunus dulcis</i>	NAfrica, C + SW.As	Europe	Rosaceae	STREET			2
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	GOVH	1939		1
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	WESTERN			3
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	ALBERT			2
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	HIGHWIC	1900-53		1
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	CORNWALL			1
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	MANUKAU			1
<i>Prunus laurocerasus</i>	Europe, Asia minor	Europe, Asia	Rosaceae	STREET			2
<i>Prunus lusitana</i>	Spain, Portugal	Europe	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Prunus lusitana</i>	Spain, Portugal	Europe	Rosaceae	MANUKAU			1
<i>Prunus lusitana</i>	Spain, Portugal	Europe	Rosaceae	STREET			1
<i>Prunus maackii</i>	Manchuria	Asia	Rosaceae	ARBG	1993	Dene's Garden Way	2
<i>Prunus mume</i> 'The Geisha'	Horticultural	Horticultural	Rosaceae	ARBG	1988	not recorded	1
<i>Prunus negundo</i> 'Variegatum'	Horticultural	Horticultural	Rosaceae	UNI			1
<i>Prunus nigra</i>	Canada	North America	Rosaceae	STREET			1
<i>Prunus nipponica</i>	Japan	Asia	Rosaceae	ARBG	1983	Top Trees Nursery	58
<i>Prunus nipponica</i>	Japan	Asia	Rosaceae	STREET			1
<i>Prunus persica</i>	China	Asia	Rosaceae	STREET			1
<i>Prunus persica</i>	China	Asia	Rosaceae	HIGHWIC	1953-78		2
<i>Prunus persica</i>	China	Asia	Rosaceae	MANUKAU			1
<i>Prunus persica</i>	China	Asia	Rosaceae	STREET			38
<i>Prunus persica</i> 'Pink Cloud'	Horticultural	Horticultural	Rosaceae	ARBG	1985		7
<i>Prunus persica</i> 'Windle Weeping'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus saligna</i>	Temperate Asia	Asia	Rosaceae	HIGHWIC	1953-78		2
<i>Prunus sargentii</i>	Japan	Asia	Rosaceae	ARBG	1995	Landsend	1
<i>Prunus sargentii</i>	Japan	Asia	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Prunus serrulata</i>	China	Asia	Rosaceae	UNITEC	Young		1
<i>Prunus serrulata</i>	China	Asia	Rosaceae	UNITEC	Mature		1
<i>Prunus serrulata</i>	China	Asia	Rosaceae	CORNWALL			3
<i>Prunus serrulata</i>	China	Asia	Rosaceae	CEMETERY			32
<i>Prunus serrulata</i>	China	Asia	Rosaceae	UNI			1

<i>Prunus serrulata</i>	China	Asia	Rosaceae	STREET			1
<i>Prunus serrulata</i>	China	Asia	Rosaceae	NOTABLE			35
<i>Prunus serrulata</i> 'Kanzan'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus serrulata</i> 'Kanzan' (<i>serrulata</i> f. <i>purpurea</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1988	Dawn Rothay	1
<i>Prunus serrulata</i> 'Kiku zakura' (<i>serrulata</i> f. <i>chrysanthemoides</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1992	Wholesale Tree Co.	1
<i>Prunus serrulata</i> 'Pink Perfection'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus serrulata</i> 'Shimidsu Sakura'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus serrulata</i> 'Shimidsu Sakura'	Horticultural	Horticultural	Rosaceae	UNI			1
<i>Prunus serrulata</i> 'Shimidsu Sakura'	Horticultural	Horticultural	Rosaceae	WINNI			2
<i>Prunus serrulata</i> 'Shirofugen'	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Prunus serrulata</i> 'Shirofugen'	Horticultural	Horticultural	Rosaceae	HIGHWIC			2
<i>Prunus serrulata</i> 'Shirotae'	Horticultural	Horticultural	Rosaceae	ARBG	1976	Pettits Garden	12
<i>Prunus serrulata</i> 'Shirotae'	Horticultural	Horticultural	Rosaceae	ARBG	1983	Duncan & Davies	8
<i>Prunus serrulata</i> 'Shirotae'	Horticultural	Horticultural	Rosaceae	GOVT	1949		4
<i>Prunus serrulata</i> 'Shirotae'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus serrulata</i> 'Ukon' (Yukon)	Horticultural	Horticultural	Rosaceae	ARBG	1992	Wholesale Tree Co.	2
<i>Prunus subhirtella</i>	Japan	Asia	Rosaceae	MANUKAU			1
<i>Prunus subhirtella</i>	Japan	Asia	Rosaceae	STREET			27
<i>Prunus subhirtella</i> 'Autumnalis Rosea'	Horticultural	Horticultural	Rosaceae	STREET			3
<i>Prunus subhirtella</i> 'Falling Snow'	Horticultural	Horticultural	Rosaceae	ARBG	1991	Rainbow Park	1
<i>Prunus triloba</i>	China	Asia	Rosaceae	ARBG	1991	Dene's Garden Way	1
<i>Prunus triloba</i>	China	Asia	Rosaceae	STREET			1
<i>Prunus x amygdalo-persica</i>	Horticultural	Horticultural	Rosaceae	MANUKAU			1
<i>Prunus x amygdalo-persica</i>	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus x blicreana</i> (<i>cerasifera</i> 'Atropurpurea' x <i>mun</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1992	Wholesale Tree Co.	1
<i>Prunus x domestica</i>	Horticultural	Horticultural	Rosaceae	UNITEC			2
<i>Prunus x domestica</i>	Horticultural	Horticultural	Rosaceae	UNITEC	Mature		1
<i>Prunus x incam</i> 'Okame'	Horticultural	Horticultural	Rosaceae	ARBG	1983	Duncan & Davies	2
<i>Prunus x incam</i> 'Okame'	Horticultural	Horticultural	Rosaceae	ARBG	1984	not recorded	1
<i>Prunus x incam</i> 'Okame'	Horticultural	Horticultural	Rosaceae	ARBG	1986		2
<i>Prunus x incam</i> 'Okame'	Horticultural	Horticultural	Rosaceae	ARBG	1987		1
<i>Prunus x incam</i> 'Okame'	Horticultural	Horticultural	Rosaceae	ARBG	1993	Wholesale Tree Co.	1

<i>Prunus x incam</i> 'Okame'	Horticultural	Horticultural	Rosaceae	ARBG	1997	Allenton Nurseries	1
<i>Prunus x juddii</i> (<i>sargentii</i> x <i>yedoensis</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1994	Top Trees Nursery	1
<i>Prunus x yedoensis</i> (<i>yoshino</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1992	Wholesale Tree Co.	1
<i>Prunus x yedoensis</i> (<i>yoshino</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1983	Harrison's Trees	2
<i>Prunus x yedoensis</i> (<i>yoshino</i>)	Horticultural	Horticultural	Rosaceae	ARBG	1984	Harrison's Trees	13
<i>Prunus x yedoensis</i> (<i>yoshino</i>)	Horticultural	Horticultural	Rosaceae	MANUKAU			47
<i>Prunus x yedoensis</i> 'Awanui'	Horticultural	Horticultural	Rosaceae	CORNWALL			1
<i>Prunus x yedoensis</i> 'Awanui'	Horticultural	Horticultural	Rosaceae	ARBG	1985	Os Blumhardt	1
<i>Prunus x yedoensis</i> 'Awanui'	Horticultural	Horticultural	Rosaceae	ARBG	1988		8
<i>Prunus x yedoensis</i> 'Awanui'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Prunus x yedoensis</i> 'Ivensii'	Horticultural	Horticultural	Rosaceae	ARBG	1989	Caves Tree Nurser	1
<i>Prunus x yedoensis</i> 'Ivensii'	Horticultural	Horticultural	Rosaceae	ARBG	1993	Dene's Garden Way	1
<i>Pyrus communis</i>	SEurope, SWAsia	Europe, Asia	Rosaceae	GOVH	1899		6
<i>Pyrus communis</i>	SEurope, SWAsia	Europe, Asia	Rosaceae	MANUKAU			2
<i>Pyrus salicifolia</i>	Caucasus	Europe, Asia	Rosaceae	STREET			1
<i>Pyrus salicifolia</i> 'Pendula'	Horticultural	Horticultural	Rosaceae	ARBG	1991	Dene's Garden Way	1
<i>Pyrus salicifolia</i> 'Pendula'	Horticultural	Horticultural	Rosaceae	ARBG	1993	Wholesale Tree Co.	1
<i>Pyrus salicifolia</i> 'Pendula'	Horticultural	Horticultural	Rosaceae	STREET			1
<i>Pyrus ussurensis</i>	NEAsia	Asia	Rosaceae	ARBG	1995		1
<i>Raphiolepis indica</i>	China	Asia	Rosaceae	MANUKAU			25
<i>Raphiolepis umbellata</i> (<i>R. japonica</i>)	Japan	Asia	Rosaceae	MANUKAU			1
<i>Sorbus</i> 'Joseph Rock'	Horticultural	Horticultural	Rosaceae	ARBG	1990	Seven Gardens	1
<i>Sorbus decora</i>	N America	North America	Rosaceae	ARBG	1990	Copenhagen	1
<i>Sorbus hupehensis</i>	China	Asia	Rosaceae	ARBG	1995	Top Trees Nursery	1
<i>Alberta magna</i>	Africa, Australia	Africa, Australasia	Rubiaceae	DOMAIN			1
<i>Alberta magna</i>	Africa, Australia	Africa, Australasia	Rubiaceae	STREET			1
<i>Alberta magna</i>	Africa, Australia	Africa, Australasia	Rubiaceae	CORNWALL			1
<i>Calodendrum capense</i>	South America	Africa	Rutaceae	ALBERT			1
<i>Casimiroa edulis</i>	South America	Africa	Rutaceae	ZOO			1
<i>Casimiroa edulis</i>	South America	Africa	Rutaceae	UNI			1
<i>Casimiroa edulis</i>	South America	Africa	Rutaceae	SHORE			1
<i>Citrus limon</i>	Tropical Asia	Asia	Rutaceae	ALBERT			1
<i>Citrus limon</i>	Tropical Asia	Asia	Rutaceae	CORNWALL			3

<i>Citrus limon</i>	Tropical Asia	Asia	Rutaceae	STREET			1
<i>Melicope ternata</i>	New Zealand	Australasia	Rutaceae	WINNI			1
<i>Phebalium squameum</i>	Australia	Australasia	Rutaceae	STREET			1
<i>Phebalium squameum</i> 'Illumination'	Horticultural	Horticultural	Rutaceae	STREET			1
<i>Rothmannia globosa</i>	Africa	Africa	Rutaceae	DOMAIN			1
<i>Populus</i> 'Kawa' (<i>yunnanensis</i> hyd)	Horticultural	Horticultural	Salicaceae	ARBG	1994	Growing	1
<i>Populus</i> 'Tasman'	Horticultural	Horticultural	Salicaceae	ARBG	1990	National Plant	1
<i>Populus</i> 'Tasman'	Horticultural	Horticultural	Salicaceae	ARBG	1994	Growing	1
<i>Populus</i> 'Toa'	Horticultural	Horticultural	Salicaceae	ARBG	1990	National Plant	1
<i>Populus alba</i>	Europe, Africa, Asia	Europe, Africa, As	Salicaceae	CEMETERY			1
<i>Populus alba</i>	Europe, Africa, Asia	Europe, Africa, As	Salicaceae	STREET			1
<i>Populus alba</i> 'Pyramidalis' (P. 'Boleana')	Horticultural	Horticultural	Salicaceae	DOMAIN			1
<i>Populus deltoides</i> (<i>monolifera</i>)	Horticultural	USA, Europe, Afri	Salicaceae	WESTERN			1
<i>Populus deltoides</i> (<i>monolifera</i>)	USA, Europe, Africa	USA, Europe, Afri	Salicaceae	RICHMOND			1
<i>Populus deltoides</i> (<i>monolifera</i>)	USA, Europe, Africa	USA, Europe, Afri	Salicaceae	DOMAIN			15
<i>Populus deltoides</i> (<i>monolifera</i>)	USA, Europe, Africa	USA, Europe, Afri	Salicaceae	CORNWALL			1
<i>Populus deltoides</i> (<i>monolifera</i>)	USA, Europe, Africa	USA, Europe, Afri	Salicaceae	MT WELL			1
<i>Populus deltoides</i> (<i>monolifera</i>)	USA, Europe, Africa	USA, Europe, Afri	Salicaceae	WINNI			1
<i>Populus deltoides</i> (<i>monolifera</i>)	USA, Europe, Africa	USA, Europe, Afri	Salicaceae	NOTABLE			1
<i>Populus lasiocarpa</i>	China	Asia	Salicaceae	HAYMAN			1
<i>Populus</i> 'Manawatu Gold'	Horticultural	Horticultural	Salicaceae	ARBG	1994	Wholesale Tree Co.	1
<i>Populus nigra</i>	Africa, Europe	Africa, Europe	Salicaceae	SPRINGS			1
<i>Populus nigra</i>	Africa, Europe	Africa, Europe	Salicaceae	CEMETERY			4
<i>Populus nigra</i>	Africa, Europe	Africa, Europe	Salicaceae	STREET			1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	UNITEC	Mature		1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	RICHMOND			109
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	MANUKAU			1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	HAYMAN			111
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	MT WELL			1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	ALBERT			1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	STREET			1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	SHORE			15
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	NOTABLE			17

<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	CORNWALL		1
<i>Populus nigra</i> 'Italica'	Horticultural	Horticultural	Salicaceae	WINNI		1
<i>Populus nigra</i> x <i>P. deltoides</i>	Horticultural	Horticultural	Salicaceae	HAYMAN		1
<i>Populus simonii</i>	China	Asia	Salicaceae	ARBG	1990	National Plant
<i>Populus szechuanica</i>	China	Asia	Salicaceae	ARBG	1990	National Plant
<i>Populus tremula</i>	Europe, Africa, Asia	Europe, Africa, Asia	Salicaceae	CENTENNIAL		1
<i>Populus trichocarpa</i>	NAmerica	North America	Salicaceae	HAYMAN		1
<i>Populus trichocarpa</i>	NAmerica	North America	Salicaceae	STREET		1
<i>Populus trichocarpa</i>	NAmerica	North America	Salicaceae	SHORE		1
<i>Populus x canadensis</i> (<i>deltoides</i> x <i>nigra</i>)	Horticultural	Horticultural	Salicaceae	SPRINGS		1
<i>Populus x canadensis</i> (<i>deltoides</i> x <i>nigra</i>)	Horticultural	Horticultural	Salicaceae	NOTABLE		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	STREET		4
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	ARBG	1994	Growing
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	ARBG	1997	Top Trees Nursery
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	UNITEC	Mature	1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	HAYMAN		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	DOMAIN		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	SPRINGS		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	CENTENNIAL		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	CORNWALL		26
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	WINNI		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	CEMETERY		1
<i>Populus yunnanensis</i>	China	Asia	Salicaceae	NOTABLE		1
<i>Salix alba</i>	Europe, NAfrica, CA	Europe, Africa, Asia	Salicaceae	DOMAIN		1
<i>Salix babylonica</i>	China	Asia	Salicaceae	UNITEC	Mature	1
<i>Salix babylonica</i>	China	Asia	Salicaceae	UNITEC	P Mat	1
<i>Salix babylonica</i>	China	Asia	Salicaceae	CORNWALL		3
<i>Salix babylonica</i>	China	Asia	Salicaceae	SPRINGS		1
<i>Salix babylonica</i>	China	Asia	Salicaceae	MT WELL		1
<i>Salix babylonica</i>	China	Asia	Salicaceae	MANUKAU		9
<i>Salix babylonica</i>	China	Asia	Salicaceae	SHORE		15
<i>Salix caprea</i>	China	Asia	Salicaceae	MANUKAU		12
<i>Salix caprea</i>	China	Asia	Salicaceae	STREET		2

<i>Salix chilensis</i>	Chile	South America	Salicaceae	UNITEC	Mature	2
<i>Salix chilensis</i>	Chile	South America	Salicaceae	STREET		2
<i>Salix cinerea</i>	Europe, C + Easia	Europe, Asia	Salicaceae	CEMETERY		1
<i>Salix fragilis</i>	Europe, Turkey, Ru	Europe, Asia	Salicaceae	HAYMAN		1
<i>Salix fragilis</i>	Europe, Turkey, Ru	Europe, Asia	Salicaceae	MANUKAU		10
<i>Salix fragilis</i>	Europe, Turkey, Ru	Europe, Turkey, R	Salicaceae	STREET		1
<i>Salix humboldtiana</i> (=S. <i>chilensis</i>)	Chile	South America	Salicaceae	MANUKAU		21
<i>Salix humboldtiana</i> (=S. <i>chilensis</i>)	Chile	South America	Salicaceae	STREET		2
<i>Salix matsudana</i>	China	Asia	Salicaceae	STREET		1
<i>Salix matsudana</i> 'Tortuosa'	Horticultural	Horticultural	Salicaceae	STREET		8
<i>Salix matsudana</i> 'Tortuosa'	Horticultural	Horticultural	Salicaceae	UNITEC	Mature	2
<i>Salix matsudana</i> 'Tortuosa'	Horticultural	Horticultural	Salicaceae	VICTORIA		1
<i>Salix matsudana</i> 'Tortuosa'	Horticultural	Horticultural	Salicaceae	HAYMAN		1
<i>Salix matsudana</i> 'Tortuosa'	Horticultural	Horticultural	Salicaceae	MANUKAU		28
<i>Salix matsudana</i> 'Tortuosa'	Horticultural	Horticultural	Salicaceae	SPRINGS		1
<i>Salix purpurea</i> 'Nana'	Horticultural	Horticultural	Salicaceae	CEMETERY		1
<i>Salix tortuosa</i> (=S. <i>cinerea</i>)	Europe, C + Easia	Europe, Asia	Salicaceae	STREET		22
<i>Salix x reichardtii</i>	Horticultural	Horticultural	Salicaceae	CEMETERY		1
<i>Salix x chrysocoma</i>	Horticultural	Europe, Asia	Salicaceae	DOMAIN		1
<i>Salix x chrysocoma</i>	Horticultural	Horticultural	Salicaceae	CORNWALL		1
<i>Salix x chrysocoma</i>	Horticultural	Horticultural	Salicaceae	WINNI		1
<i>Salix x sepulcralis</i>	Horticultural	Horticultural	Salicaceae	HAYMAN		1
<i>Salix x sepulcralis</i>	Horticultural	Horticultural	Salicaceae	STREET		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	WESTERN		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	ALBERT		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	DOMAIN		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	WILSON		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	HIGHWIC	863-1900	1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	HIGHWIC	1900-53	1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	DEVONPORT		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	CENTENNIAL		1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	MANUKAU		882
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	WAITAKERE		1

<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	ORATIA	1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	STREET	604
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	CORNWALL	38
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	MT WELL	1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	WINNI	1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	UNI	12
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	SHORE	2
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	NOTABLE	1
<i>Alectryon excelsus</i>	New Zealand	Australasia	Sapindaceae	ST KENTS	1
<i>Alectryon grandis</i>	New Zealand	Australasia	Sapindaceae	UNI	2
<i>Alectryon grandis</i>	New Zealand	Australasia	Sapindaceae	ORATIA	1
<i>Cupaniopsis anacardioides</i> (<i>Cupania anacardioides</i>)	Australia	Australasia	Sapindaceae	DOMAIN	1
<i>Diploglottis australis</i> (= <i>D. cunninghamii</i>)	Australia	Australasia	Sapindaceae	UNI	1
<i>Dodonaea viscosa</i>	New Zealand, Austr	Australasia, Africa	Sapindaceae	UNI	1
<i>Dodonaea viscosa</i>	New Zealand, Austr	Australasia, Africa	Sapindaceae	STREET	53
<i>Dodonaea viscosa</i>	New Zealand, Austr	Australasia, Africa	Sapindaceae	MANUKAU	141
<i>Dodonaea viscosa</i> 'Purpurea'	New Zealand	Australasia, Africa	Sapindaceae	STREET	1
<i>Koelreuteria paniculata</i>	China	Asia	Sapindaceae	CORNWALL	2
<i>Koelreuteria paniculata</i>	China	Asia	Sapindaceae	UNI	1
<i>Koelreuteria paniculata</i>	China	Asia	Sapindaceae	MANUKAU	62
<i>Planchonella costata</i> (see <i>Sideroxylon costatum</i>)	Australia	Australasia	Sapindaceae	DOMAIN	1
<i>Planchonella costata</i> (see <i>Sideroxylon costatum</i>)	Australia	Australasia	Sapindaceae	SHORE	1
<i>Pouteria costata</i> (see <i>Sideroxylon costatum</i>)	Australia	Australasia	Sapotaceae	WINNI	1
<i>Ailanthus altissima</i>	China	Asia	Simaroubaceae	CORNWALL	5
<i>Ailanthus altissima</i>	China	Asia	Simaroubaceae	ALBERT	11
<i>Ailanthus altissima</i>	China	Asia	Simaroubaceae	UNI	3
<i>Ailanthus altissima</i>	China	Asia	Simaroubaceae	STREET	2
<i>Ailanthus altissima</i>	China	Asia	Simaroubaceae	NOTABLE	1
<i>Brugmansia sanguinea</i>	Columbia to NChile	South America	Solanaceae	DOMAIN	1
<i>lochroma grandiflorum</i>	Equador	South America	Solanaceae	DOMAIN	1
<i>Solanum aviculare</i>	Australia, NewZeal	Australasia	Solanaceae	CORNWALL	2
<i>Brachychiton acerifolius</i>	Australia	Australasia	Sterculiaceae	DOMAIN	1
<i>Brachychiton acerifolius</i>	Australia	Australasia	Sterculiaceae	CENTENNIAL	1

<i>Brachychiton acerifolius</i>	Australia	Australasia	Sterculiaceae	WINNI	1
<i>Brachychiton acerifolius</i>	Australia	Australasia	Sterculiaceae	STREET	5
<i>Brachychiton acerifolius</i>	Australia	Australasia	Sterculiaceae	UNI	4
<i>Brachychiton discolor</i>	Australia	Australasia	Sterculiaceae	DOMAIN	1
<i>Brachychiton discolor</i>	Australia	Australasia	Sterculiaceae	SPRINGS	1
<i>Brachychiton discolor</i>	Australia	Australasia	Sterculiaceae	ZOO	1
<i>Brachychiton populneus</i>	Australia	Australasia	Sterculiaceae	DOMAIN	1
<i>Brachychiton populneus</i>	Australia	Australasia	Sterculiaceae	WINNI	1
<i>Brachychiton populneus</i>	Australia	Australasia	Sterculiaceae	UNI	1
<i>Brachychiton populneus</i>	Australia	Australasia	Sterculiaceae	STREET	1
<i>Brachychiton rupestris</i> (= <i>Sterculia rupestris</i>)	Australia	Australasia	Sterculiaceae	DOMAIN	1
<i>Cheirostemon platanoides</i>	Mexico to Guatemala	North America	Sterculiaceae	SPRINGS	1
<i>Cheirostemon platanoides</i>	Mexico to Guatemala	North America	Sterculiaceae	ALBERT	1
<i>Strelitzia alba</i>	South Africa	Africa	Sterculiaceae	ALBERT	2
<i>Strelitzia nicholai</i>	South Africa	Africa	Strelitziaceae	ALBERT	1
<i>Strelitzia nicholai</i>	South Africa	Africa	Strelitziaceae	CORNWALL	1
<i>Strelitzia nicholai</i>	South Africa	Africa	Strelitziaceae	DOMAIN	1
<i>Strelitzia reginae</i>	South Africa	Africa	Strelitziaceae	STREET	2
<i>Tamarix juniperina</i>	China	Asia	Tamaricaceae	UNI	1
<i>Taxus baccata</i>	Europe, Nafrika to I	Europe, Africa, As	Taxaceae	NOTABLE	1
<i>Taxus baccata</i> 'Fastigiata'	Horticultural	Horticultural	Taxaceae	ALBERT	1
<i>Taxus baccata</i> 'Fastigiata'	Horticultural	Horticultural	Taxaceae	CORNWALL	3
<i>Taxus baccata</i> 'Fastigiata'	Horticultural	Horticultural	Taxaceae	WINNI	1
<i>Taxus baccata</i> 'Fastigiata'	Horticultural	Horticultural	Taxaceae	UNI	2
<i>Taxus baccata</i> 'Fastigiata'	Horticultural	Horticultural	Taxaceae	NOTABLE	1
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	GOVH 1919	4
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	GOVH 1939	4
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	RICHMOND	1
<i>Cryptomeria japonica</i>	Japan	Australasia	Taxodiaceae	HAYMAN	1
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	WILSON	1
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	ALBERTON	1
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	ALBERTON	1
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	CELIA	1

<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	DOMAIN		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	CORNWALL		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	CORNWALL		173	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	MT WELL		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	WINNI		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	CEMETERY		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	UNI		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	STREET		37	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	SHORE		1	
<i>Cryptomeria japonica</i>	Japan	Asia	Taxodiaceae	NOTABLE		1	
<i>Cryptomeria japonica</i> 'Cristata'	Horticultural	Horticultural	Taxodiaceae	ARBG	1994	Eion Scarrow	1
<i>Cryptomeria japonica</i> 'Elegans Nana'	Horticultural	Horticultural	Taxodiaceae	ARBG	1993	Wholesale Tree Co	1
<i>Cryptomeria japonica</i> 'Elegans'	Horticultural	Horticultural	Taxodiaceae	DOMAIN		1	
<i>Cryptomeria japonica</i> 'Elegans'	Horticultural	Horticultural	Taxodiaceae	CORNWALL		21	
<i>Cryptomeria japonica</i> 'Elegans'	Horticultural	Horticultural	Taxodiaceae	WINNI		1	
<i>Cryptomeria japonica</i> 'Elegans'	Horticultural	Horticultural	Taxodiaceae	STREET		19	
<i>Cryptomeria japonica</i> 'Globosa Nana'	Horticultural	Horticultural	Taxodiaceae	EDEN	1994 +		1
<i>Cryptomeria japonica</i> 'Jindai Sugi'	Horticultural	Horticultural	Taxodiaceae	ARBG	1986		1
<i>Cryptomeria japonica</i> 'Monstrosa'	Horticultural	Horticultural	Taxodiaceae	ARBG	1994	Wholesale Tree Co	1
<i>Cryptomeria japonica</i> 'Spiralis'	Horticultural	Horticultural	Taxodiaceae	ARBG	1992	Wholesale Tree Co	1
<i>Cryptomeria japonica</i> 'Spiralis'	Horticultural	Horticultural	Taxodiaceae	ARBG	1994	Wholesale Tree Co	1
<i>Cryptomeria japonica</i> 'Vilmoriniana'	Horticultural	Horticultural	Taxodiaceae	ARBG	1984		1
<i>Cunninghamia konishii</i>	Taiwan	Asia	Taxodiaceae	ARBG	1994	Cedar Lodge	1
<i>Cunninghamia konishii</i>	Taiwan	Asia	Taxodiaceae	ARBG	1998	Cedar Lodge	1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	ARBG	1984		1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	ARBG	1985		1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	ARBG	1988	Cedar Lodge	1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	ARBG	1991	Dene's Garden Way	1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	RICHMOND			1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	CENTENNIAL			1
<i>Cunninghamia lanceolata</i>	China	Asia	Taxodiaceae	MT WELL			1
<i>Glyptostrobus lineatus (pensilis)</i>	China	Asia	Taxodiaceae	ARBG	1988	Platts Nursery	1
<i>Glyptostrobus lineatus (pensilis)</i>	China	Asia	Taxodiaceae	ARBG	1991	Caves Tree Nursery	1

<i>Glyptostrobus lineatus (pensilis)</i>	China	Asia	Taxodiaceae	ARBG	1998	Caves Tree Nursery	2
<i>Glyptostrobus lineatus (pensilis)</i>	China	Asia	Taxodiaceae	UNI			1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	ARBG	1976	Palmers	1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	ARBG	1990	Cedar Lodge	1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	ARBG	1991	Caves Tree Nursery	1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	ARBG	1997	Steve Benham	1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	GOVH	1949		1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	EDEN	1998	Caves Tree Nursery	1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	SPRINGS			1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	DOMAIN			1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	CENTENNIAL			1
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	UNI			2
<i>Metasequoia glyptostroboides</i>	China	Asia	Taxodiaceae	NOTABLE			1
<i>Metasequoia glyptostroboides</i> 'Sheridan Spire'	Horticultural	Horticultural	Taxodiaceae	ARBG	1984	Duncan & Davies	1
<i>Metasequoia glyptostroboides</i> 'Sheridan Spire'	Horticultural	Horticultural	Taxodiaceae	ARBG	1985	Duncan & Davies	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	ARBG	1989	Jack Hobbs	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	ARBG	1990	Redoubt Road?	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	ARBG	1991	Dene's Garden Way	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	ARBG	1993	Cedar Lodge	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	ARBG	1998	Eric Chamberlain	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	EDEN	1997	Cedar Lodge	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	DOMAIN	1938	Watters	1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	UNI			1
<i>Sciadopitys verticillata</i>	Japan	Asia	Taxodiaceae	MANUKAU			3
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	ALBERTON			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	WESTERN			7
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	ALBERT			2
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	HAYMAN			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	DOMAIN			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	WILSON			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	WAITAKERE			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	WAITAKERE			4
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	CORNWALL			47

<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	MT WELL			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	WINNI			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	UNI			1
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	MANUKAU			5
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	STREET			4
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	SHORE			6
<i>Sequoia sempervirens</i>	USA	North America	Taxodiaceae	NOTABLE			1
<i>Sequoia sempervirens</i> 'Adpressa' (Albospica)	Horticultural	Horticultural	Taxodiaceae	ARBG	1994	Cedar Lodge	1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	ARBG	1998	Cedar Lodge	2
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	ALBERT			2
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	HAYMAN			1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	DOMAIN			1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	CAMBRIA			1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	CENTENNIAL			1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	CORNWALL			1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	UNI			1
<i>Sequoiadendron giganteum</i>	USA	North America	Taxodiaceae	NOTABLE			1
<i>Taxodium ascendens</i> (<i>T. distichum</i> var. <i>imbricarium</i>)	USA	North America	Taxodiaceae	ARBG	1991	Caves Tree Nurser	1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	MARC	1979		1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	EDEN	1989 +		1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	HAYMAN			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	VICTORIA			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	WILSON			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	DOMAIN			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	SPRINGS			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	CEMETERY			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	UNI			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	MANUKAU			14
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	STREET			7
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	SHORE			1
<i>Taxodium distichum</i>	USA	North America	Taxodiaceae	NOTABLE			1
<i>Taxodium mucronatum</i>	Mexico	North America	Taxodiaceae	ARBG	1991	Caves Tree Nurser	1
<i>Taxodium mucronatum</i>	Mexico	North America	Taxodiaceae	CELIA			1

<i>Taxodium mucronatum</i>	Mexico	North America	Taxodiaceae	CENTENNIAL			1
<i>Entelea arborescens</i>	New Zealand	Australasia	Tiliaceae	ALBERT			1
<i>Entelea arborescens</i>	New Zealand	Australasia	Tiliaceae	VICTORIA			1
<i>Entelea arborescens</i>	New Zealand	Australasia	Tiliaceae	MANUKAU			1
<i>Entelea arborescens</i>	New Zealand	Australasia	Tiliaceae	CORNWALL			52
<i>Entelea arborescens</i>	New Zealand	Australasia	Tiliaceae	UNI			1
<i>Entelea arborescens</i>	New Zealand	Australasia	Tiliaceae	STREET			5
<i>Tilia cordata</i>	Europe	Europe	Tiliaceae	ARBG	1990	Tree Dimension	1
<i>Tilia cordata</i>	Europe	Europe	Tiliaceae	CORNWALL			16
<i>Tilia mongolica</i>	China	Asia	Tiliaceae	ARBG	1995	Top Trees	1
<i>Tilia platyphyllos</i>	Europe	Europe	Tiliaceae	STREET			1
<i>Tilia tomentosa</i>	Europe	Europe	Tiliaceae	ARBG	1993	Chiltern Seeds	1
<i>Tilia x euclora</i>	Horticultural	Horticultural	Tiliaceae	WESTERN			1
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	ALBERT			3
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	DOMAIN			1
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	MANUKAU			3
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	DEVONPORT			1
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	MT WELL			1
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	STREET			16
<i>Tilia x europaea</i>	Horticultural	Horticultural	Tiliaceae	NOTABLE			1
<i>Celtis africana</i>	Africa	Africa	Ulmaceae	ARBG	1989	Os Blumhardt	1
<i>Celtis africana</i>	Africa	Africa	Ulmaceae	ARBG	1997	Top Trees Nursery	1
<i>Celtis australis</i>	Meditarranean, SW	Europe, Asia	Ulmaceae	CELIA			1
<i>Celtis australis</i>	Europe, Africa, Asia	Europe, Asia	Ulmaceae	WINNI			1
<i>Celtis australis</i>	Europe, Africa, Asia	Europe, Asia	Ulmaceae	NOTABLE			1
<i>Celtis occidentalis</i>	E Namerica	North America	Ulmaceae	CORNWALL			5
<i>Celtis occidentalis</i>	E Namerica	North America	Ulmaceae	DOMAIN			1
<i>Celtis occidentalis</i>	E Namerica	North America	Ulmaceae	STREET			1
<i>Celtis sinensis</i>	China, Japan, Korea	Asia	Ulmaceae	ARBG	1984	not recorded	2
<i>Celtis sinensis</i>	China, Japan, Korea	Asia	Ulmaceae	ARBG	1994	Caves Tree Nurser	1
<i>Celtis sinensis</i>	China, Japan, Korea	Asia	Ulmaceae	DOMAIN			1
<i>Ulmus 'Lobel'</i>	Horticultural	Horticultural	Ulmaceae	STREET			1
<i>Ulmus americana</i>	America	America	Ulmaceae	NOTABLE			1

<i>Ulmus carpinifolia</i>	Europe	Europe	Ulmaceae	VICTORIA		2
<i>Ulmus carpinifolia</i>	Europe	Europe	Ulmaceae	STREET		2
<i>Ulmus carpinifolia</i> 'Variegata'	Horticultural	Horticultural	Ulmaceae	STREET		2
<i>Ulmus glabra</i>	Europe, SWAsia	Europe, Asia	Ulmaceae	WESTERN		1
<i>Ulmus glabra</i>	Europe, SWAsia	Europe, Asia	Ulmaceae	DOMAIN		44
<i>Ulmus glabra</i>	Europe, SWAsia	Europe, Asia	Ulmaceae	MANUKAU		1
<i>Ulmus glabra</i>	Europe, SWAsia	Europe, Asia	Ulmaceae	STREET		1
<i>Ulmus glabra</i>	Europe, SWAsia	Europe, Asia	Ulmaceae	NOTABLE		1
<i>Ulmus glabra</i> var. <i>aurea</i>	Europe	Europe	Ulmaceae	ALBERTON		1
<i>Ulmus glabra</i> 'Camperdown'	Horticultural	Horticultural	Ulmaceae	UNI		1
<i>Ulmus glabra</i> 'Camperdown'	Horticultural	Horticultural	Ulmaceae	ALBERT		1
<i>Ulmus glabra</i> 'Camperdown'	Horticultural	Horticultural	Ulmaceae	NOTABLE		1
<i>Ulmus glabra</i> 'Lutescens'	Horticultural	Horticultural	Ulmaceae	STREET		1
<i>Ulmus glabra</i> 'Pendula'	Horticultural	Horticultural	Ulmaceae	UNITEC	Mature	2
<i>Ulmus glabra</i> 'Pendula'	Horticultural	Horticultural	Ulmaceae	ALBERT		2
<i>Ulmus glabra</i> 'Pendula'	Horticultural	Horticultural	Ulmaceae	STREET		1
<i>Ulmus parvifolia</i>	China	Asia	Ulmaceae	DOMAIN		1
<i>Ulmus parvifolia</i>	China	Asia	Ulmaceae	CORNWALL		1
<i>Ulmus parvifolia</i>	China	Asia	Ulmaceae	MANUKAU		78
<i>Ulmus parvifolia</i>	China	Asia	Ulmaceae	STREET		25
<i>Ulmus pendula</i>	Europe	Europe	Ulmaceae	SHORE		4
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	WESTERN		17
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	ALBERT		1
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	HAYMAN		1
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	HIGHWIC		1
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	CORNWALL		2
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	VICTORIA		1
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	MT WELL		1
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	UNI		1
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	STREET		7
<i>Ulmus procera</i>	Europe	Europe	Ulmaceae	NOTABLE		1
<i>Ulmus procera</i> 'Louis van Houtte'	Horticultural	Horticultural	Ulmaceae	HIGHWIC	1978-95	1
<i>Ulmus procera</i> 'Louis van Houtte'	Horticultural	Horticultural	Ulmaceae	CENTENNIAL		1

<i>Ulmus procera</i> 'Louis van Houtte'	Horticultural	Horticultural	Ulmaceae	MANUKAU		472
<i>Ulmus procera</i> 'Louis van Houtte'	Horticultural	Horticultural	Ulmaceae	UNI		1
<i>Ulmus procera</i> 'Louis van Houtte'	Horticultural	Horticultural	Ulmaceae	STREET		44
<i>Ulmus pumila</i>	Siberia, China, Tur	Asia	Ulmaceae	HAYMAN		1
<i>Ulmus pumila</i>	Siberia, China, Tur	Asia	Ulmaceae	STREET		1
<i>Ulmus thomasii</i>	USA	North America	Ulmaceae	DEVONPORT		1
<i>Ulmus vulgaris</i>	Europe, Orient	Europe, Asia	Ulmaceae	STREET		1
<i>Ulmus x hollandica</i> (<i>carpinifolia</i> x <i>glabra</i>)	Horticultural	Horticultural	Ulmaceae	ALBERT		3
<i>Ulmus x hollandica</i> (<i>carpinifolia</i> x <i>glabra</i>)	Horticultural	Horticultural	Ulmaceae	NOTABLE		1
<i>Zelkova serrata</i>	SKorea, Japan, Tai	Asia	Ulmaceae	DOMAIN		1
<i>Zelkova serrata</i>	SKorea, Japan, Tai	Asia	Ulmaceae	ZOO		1
<i>Zelkova serrata</i>	SKorea, Japan, Tai	Asia	Ulmaceae	CENTENNIAL		1
<i>Zelkova serrata</i>	SKorea, Japan, Tai	Asia	Ulmaceae	UNI		1
<i>Zelkova serrata</i>	SKorea, Japan, Tai	Asia	Ulmaceae	STREET		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	GOVH	1919	14
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	UNITEC	Mature	2
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	UNITEC	Post M	1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	WESTERN		11
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	ALBERT		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	RICHMOND		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	HAYMAN		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	VICTORIA		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	ORATIA		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	WILSON		2
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	MANUKAU		203
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	ALBERTON		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	CELIA		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	CAMBRIA		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	DEVONPORT		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	DOMAIN		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	WAITAKERE		3
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	CENTENNIAL		1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	HIGHWIC	1953-78	1

<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	CHELSEA	1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	CORNWALL	340
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	MT WELL	1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	WINNI	1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	UNI	12
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	STREET	185
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	SHORE	65
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	NOTABLE	1
<i>Vitex lucens</i>	New Zealand	Australasia	Verbenaceae	ST KENTS	1
<i>Melicytus rhamiflorus</i>	New Zealand	Australasia	Violaceae	WINNI	1
<i>Melicytus rhamiflorus</i>	New Zealand	Australasia	Violaceae	UNI	1
<i>Drimys winteri</i>	South America	South America	Winteraceae	CENTENNIAL	1
<i>Drimys winteri</i>	South America	South America	Winteraceae	UNI	1

Anomalies:					
<i>Acer biloba</i>			Aceraceae	UNI	1
<i>Rhopalostylis spectabile</i>			Aracaceae	UNI	1
<i>Teucrium fruticans</i>	W Mediterranean	Europe	Lamiaceae	MANUKAU	6
<i>Westringia fruticosa</i>	Australia	Australasia	Lamiaceae	MANUKAU	1
<i>Gingko tawa</i>		Asia	Ginkgoaceae	UNI	1
<i>Dysoxylum robusta</i>		Australasia	Meliaceae	UNI	1
<i>Metrosideros cupressinum</i>		Australasia	Myrtaceae	UNI	1
<i>Platanus cyperus</i>			Platanaceae	MANUKAU	1
<i>Escallonia bifida</i>	Argentina	South America	Saxifragaceae	RICHMOND	1
<i>Cryptomeria cunninghamiana</i>			Taxodiaceae	STREET	1
<i>Sequoiadendron sempervirens</i>	USA	North America	Taxodiaceae	UNI	1

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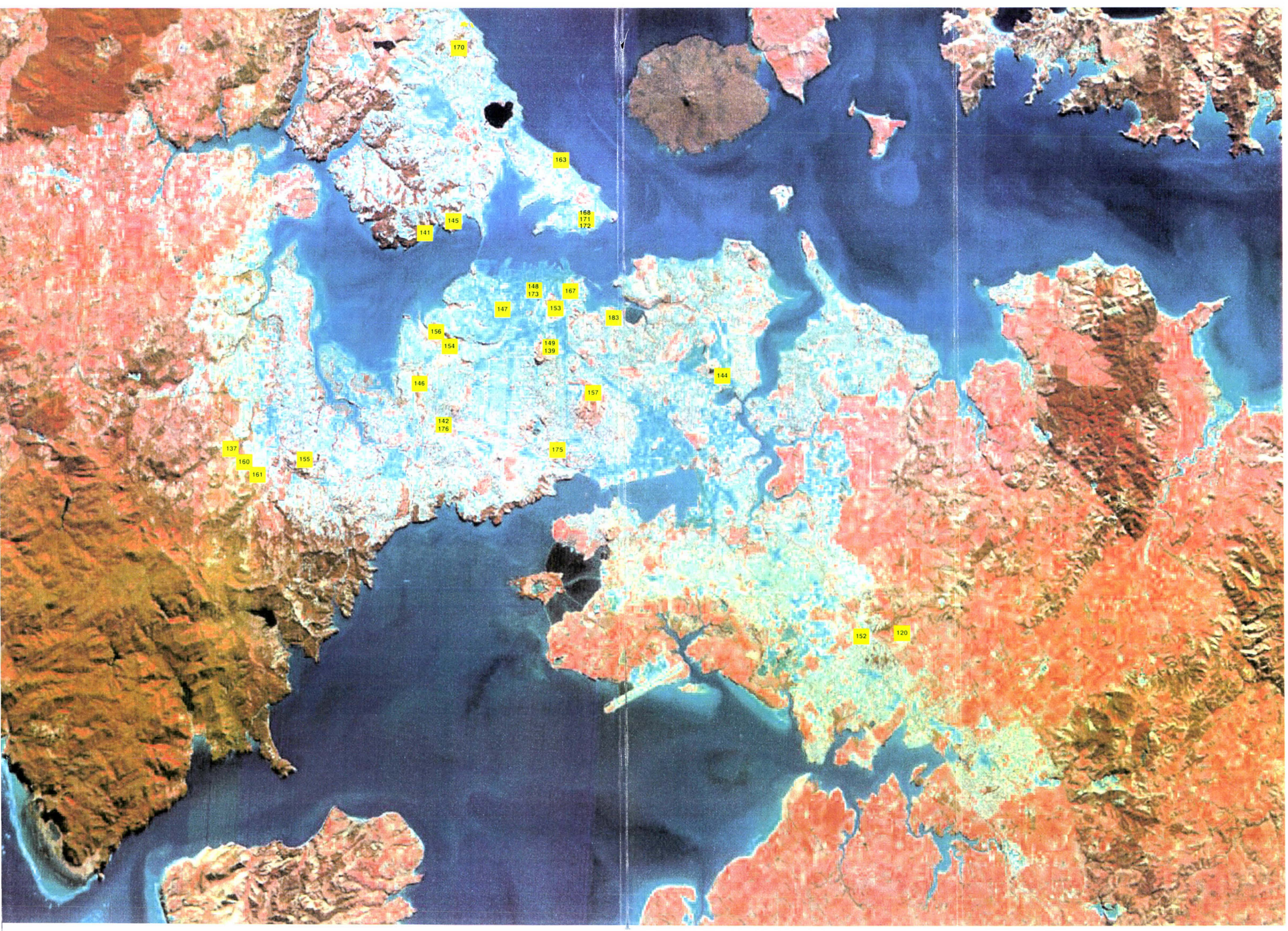
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