

THE BOTANIC GARDEN

A Newsletter for the Botanic Gardens of Australia and New Zealand



Issue 16 - November 2006

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From the President -

BGANZ ANNUAL GENERAL MEETING 2006

The second Annual General Meeting of BGANZ was held at the Royal Botanic Gardens Melbourne on 25 October 2006. At the conclusion of the 2005-06 financial year BGANZ had 24 individual members, 16 institutional members, and three associate members. The organisation finished the year in a sound financial position, aided particularly by the membership of a number of the larger botanic gardens on both sides of the Tasman. However, if BGANZ is really to prosper it needs more members – individuals, and also more botanic gardens from regional areas of Australia and New Zealand. A further two individual, two institutional and two associate members have joined in the current financial year.

Existing regional networks in New Zealand, New South Wales and Victoria have re-badged themselves under the BGANZ banner, and all three groups have been active during the year with a number of local meetings and conferences. Regional gardens in Queensland are in the early stages of forming a state BGANZ network there. BGANZ NZ has produced two newsletters, and is well advanced in organising the next BGANZ Congress to be held at the Hamilton Gardens in October 2007. Four issues of the excellent BGANZ newsletter *The Botanic Garden* were prepared by the editor Virginia Berger and emailed to members in 2005-06.

The AGM was held in association with the first BGANZ professional development workshop, which focussed on water management for botanic gardens. The two-day meeting was hosted and organised by RBG Melbourne and was attended by 32 gardens staff from as far afield as Perth and Mackay. The low-cost, high-value workshop featured on-site demonstrations and expert speakers from botanic gardens, universities and water authorities. Topics included landscape planning for climate trends, plant selection, plant-soil-water equations, water sensitive urban design, water supply issues for botanic gardens, managing water quality in lakes, water testing procedures, turf management, and irrigation performance testing. Feedback from participants was very positive in supporting the value of BGANZ auspicing more workshops like this for members. BGANZ NZ is preparing to hold a workshop on Integrated Pest Management at Wellington Botanic Garden in March, and an education programs workshop is under consideration, possibly in NSW, in 2007.

Philip Moors
BGANZ President

PEOPLE

New Director for Australian National Botanic Gardens

Anne Duncan comes to the Australian National Botanic Gardens from the Tasmanian Parks and Wildlife Service where she has been Regional Manager for Southern Tasmania. In that role Anne was responsible for leading a regional team developing and implementing land, visitor and conservation management. This ranged from Macquarie Island in the Southern Ocean, through to the South-West World Heritage Area and major national parks, coastal and island reserves.

Anne has 20 years experience in conservation management and policy development at national, State and regional and remote community levels. She has worked with the Tasmania State Government, Wet Tropics Management Authority, Environment Australia, and regional community and business organizations. She has a particular interest in threatened species conservation, as well as the practical integration of business and environmental management systems.

Anne was born in Scotland, educated in Australia, and has Bachelors and Honors degrees in Science from the Australian National University and University of Tasmania. She is currently undertaking an Executive Master of Business Administration at the University of Melbourne. Anne is married and has two primary school aged children, Hamish and Fergus.

New position for Robin Nielsen, past Director of the Australian National Botanic Gardens

At the end of August, Robin Nielsen ended his term of six years as Director of the Australian National Botanic Gardens. He has moved to a position in the Forest Industries Branch of the Australian Government Department of Agriculture, Forestry and Fisheries, a move which sees him return to forestry, an area he worked in previously.

During his tenure as Director, the gardens gained funding for a new nursery in 2004, met the challenge of water restrictions and significantly raised its profile in the Canberra community, resulting in increased visitor numbers.

As a member of the Council of Heads of Australian Botanic Gardens (CHABG), and more recently as Secretary/Treasurer and Public Officer of Botanic Gardens Australia and New Zealand (BGANZ), Robin has contributed significantly to these organisations. He was a member of the caretaker Council which oversaw the registration of BGANZ as an Incorporated Association and being aware of the need for a body to represent the interests of botanic gardens in Australia and New Zealand, played a strong role in the formation of the new association. Members of BGANZ offer their thanks to Robin for his contributions to the Botanic Gardens community, and wish him well with his new appointment.



New position for John Schutz, former Head of Gardens, Botanic Gardens of Adelaide



John Schutz, formerly Head of Gardens in the Science and Conservation Directorate, Department of Environment and Heritage, Adelaide, is another member of the BGANZ Council to have recently accepted a new position.

John leaves the Botanic Gardens at the end of October to take up a new position of Director Regional Conservation within the Department.

Allan Holmes, Chief Executive of the Department notes that “John was selected from a competitive field of internal, state and national applicants and will bring a wealth of experience and knowledge both to the executive table and to the delivery of DEH’s programs on the ground.”

John was an inaugural member of the BGANZ Council and has been a strong contributor to the development of BGANZ. Members of BGANZ wish him well with his new appointment and thank him for his significant contribution to the organisation.

MEETINGS AND CONFERENCES

Botanic Gardens of Australia & New Zealand Third Biennial Australasian Congress 2007

11-14 October, 2007

Hamilton Gardens, Hamilton, New Zealand

“Building Partnerships”

Streams include:

- Plant diversity and conservation
- Engaging with the community
- The botanic garden as a visitor attraction
- The educative role of botanic gardens

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3rd Global Botanic Gardens Congress

Wuhan, China

April 16-20, 2007

“Building a sustainable future: the role of botanic gardens”

Organized by Wuhan Botanical Garden, Chinese Academy of Sciences, Hubei Provincial Government, Wuhan Municipal Government and Botanic Gardens Conservation International.

The Global Botanic Gardens Congress is held every three years and is recognized as the primary international event for botanic gardens worldwide. This is the first time a Congress has been held in Asia and will mark the 20th anniversary of BGCI.

The importance of botanic gardens in plant conservation, research and public education and awareness about plant diversity is now widely recognized. Discussions in Wuhan will centre on the important theme of the Global Strategy for Plant Conservation. The Congress will provide a global forum for the botanic garden community to share their knowledge, experience, practice and research. An exciting scientific programme is being prepared, which includes presentations by distinguished speakers, symposia on a wide range of topics, participatory workshops, field excursions and garden visits.

In addition, all participants will have the opportunity to visit Wuhan Botanical Garden, which not only has some stunning displays of plants, but is a world-class scientific institute. The host city Wuhan is the capital of Hubei Province. It is situated at the confluence of the Yangtze and the Hanshui Rivers in an area of more than 1000 lakes. Wuhan is easily accessible for both international and domestic travel with a well-connected transport system.

For more information: <http://www.3gbgc.com/>

ARTICLES

Following on from the theme of the last issue, *Functions and Events – Generating Revenue*, Delwyn Masters, Communications Coordinator with New Plymouth District Council, New Zealand, outlines the approach taken by the Council at Pukekura Park, named a Garden of National Significance by the New Zealand Gardens Trust in 2004.

Developing the green dollar

New Plymouth District, on the west coast of New Zealand's North Island, is blessed with world-class gardens and outdoor recreation spaces. Such gardens stem from the district's rich volcanic soils, high sunshine and good rainfall hours, plus the moderating effects of the Tasman Sea. But it also comes down to ingenious forethought by the city's early politicians (who saw the benefit of building large recreation spaces for the new city), professional expertise and financial backing.

New Plymouth District Council's focus is on providing excellent experiences that have huge potential over a long period of time, and providing those experiences in superior gardens and parks – and from that the financial benefits flow.

In the centre of New Plymouth is Pukekura Park – 52ha of bush walks, formal gardens, zoo, fernery, lakes and sportsground that is considered the district's jewel in the crown. There are, of course, significant costs in maintaining Pukekura Park – and in 2004 it was named a Garden of National Significance by the New Zealand Gardens Trust – but the park's benefits to the wider community are far-reaching.



Mount Taranaki/Egmont overlooks Poet's Bridge on Pukekura Park's main lake. The park is surrounded by the city of New Plymouth – not that you can tell from within the park itself.

Photo: **Jane Dove Juneau**

Unique night-time festival

The park is the site of the TSB Bank Festival of Lights: An annual event that runs every evening from mid-December to early February, which illuminates the park's main features and transforms it into a night-time wonderland.

Through its two programmes of events – Daytime Delights and Tonight's Highlights – about 35 daytime events are held on reserves, beaches and parks throughout New Plymouth District, and two stages in Pukekura Park hold entertainment every night during the festival's eight-week programme. More than 5km of cable and hundreds of lighting features are used in this spectacular festival. The event is unique in New Zealand and it attracts around 200,000 people every year – and it's all free to the public.

So how does the festival financially benefit the district? What NPDC has done is create an event unlike anything else in the country, which brings families into this huge park at night – which is an unusual experience in itself – and entertain young and old alike.

The origins of the festival go back to 1953 when a fountain commemorating the coronation of Queen Elizabeth II was installed in one of the park's lakes with lights beneath it. The festival itself began in 1993, but in 2003 it was put on a whole new footing with a business plan to strengthen it as a significant event in New Zealand.

That professional approach brought with it sponsorship from TSB Community Trust – the trust of the locally based nation-wide TSB Bank – which has helped the council develop the festival's features, as well as being voted New Zealand's best Cultural Festival and Arts Event by Creative New Zealand in 2005. The festival didn't win that award solely because the event is pretty. It won due to the high public participation in the event and for the significant economic benefit it brings to the region.

Accommodation outlets frequently mention how people arrive for one night but end up staying for two or three, solely because the Festival of Lights has caught their imagination. The immediate economic flow-on for businesses in the tourism and hospitality sector is significant. So even though the council does not benefit directly, the local economy certainly does – and will continue to do so in the future.

TSB Bowl of Brooklands

In the southern end of Pukekura Park is the TSB Bowl of Brooklands: A natural outdoor amphitheatre that is fast becoming New Zealand's leading outdoor concert venue.

This year the Bowl's Summer of Sound brought a series of big names for seven concerts, including John Fogerty of Creedence Clearwater Revival fame, the Doobie Brothers, Russell Watson, Amici Forever, UB40, Stevie Nicks, John Farnham, Michael Crawford and Jimmy Cliff. Previous performers have included Dame Kiri Te Kanawa, Cliff Richard, Split Enz, Crowded House, Mark Knopfler and R.E.M. – and the unique atmosphere of sitting under the stars within Pukekura Park while at these concerts has seen the Bowl's reputation grow nationally.

While the Bowl can generate substantial income, this has to be set against operating costs and maintenance of the asset – including the wear and tear of thousands of people on the Bowl's grassed surfaces. The main financial benefit of having an international-standard outdoor entertainment venue is in the economic value the events bring to the district – particularly for those in the tourism and hospitality sector.

Being a council owned and managed facility, there are many guardians who have the long-term best interests of the park at heart. It is the council's responsibility to make sure the park remains in top condition for the benefit of the wider community throughout the whole year. But not all significant economic benefits are in hard cash.

Long-term skills

As important as today's regional economy is to the council, the area's future economic strength is just as important. Developing much-needed skills and retaining them in the region are key to the district's future, and keeping Pukekura Park to an exceptionally high standard is one of the pieces in this puzzle.

For example, the council runs an annual competition for local students to design and build a light feature for the TSB Bank Festival of Lights. Not only does the competition engage the public in the event, but it also encourages development of people's creative and engineering skills.

Pukekura Park's Fernery also plays its part. The facility is unique as it was dug into an earth bank – and being below normal ground level, the three glass-topped caverns create a temperate environment suited to a wide variety of plants. Visitors walk through earth tunnels to see more than 100 varieties of native ferns as well as displays of indoor and outdoor plants from around the world. The Fernery is widely regarded as the best public display conservatory anywhere in New Zealand, and on a par with many major facilities overseas.

The multi-room Fernery in Pukekura Park retains specialised horticultural skills in New Plymouth District and is a visitor attraction in its own right.

Photo: Jane Dove Juneau



Entrance to the Fernery is free, but the community benefit comes from retaining and developing specialised horticulture skills in the district, and providing a significant attraction for both tourists and horticulture professionals.

What NPDC has learned is this: When developing the financial benefits from garden facilities, it's important to think of the whole picture – both the immediate pay-off and long-term economic development – if you're to maximise the benefits to your community.

Delwyn Masters
Communications Coordinator
New Plymouth District Council

In the last issue of The Botanic Garden, Lorraine Perrins (Royal Tasmanian Botanical Gardens) read about Dan Bishop (Mt Annan) putting together a workshop for the Botanic Gardens Congress to be held next year in Wuhan, China, on the possibilities for gardens to network more on conservation projects. She hopes the following article might prompt some discussion on this issue.

How Botanic Gardens can Contribute to Plant Conservation in Developing Countries

In 1989 Botanic Gardens Conservation International developed the 'Botanic Gardens Conservational Strategy' (BGCI 1989). This strategy mentioned that the distribution of botanic gardens is 'ill-matched to the likely demands for conservation, with most species occurring in the tropical or semi-tropical countries where there are few botanic gardens in relation to species diversity'. The development of botanic gardens has been driven largely by factors such as public access and proximity to research and educational facilities rather than taking geographical conservation priorities into account. This has resulted in predominately urban gardens distant from the 'biodiversity frontline' (Maunder, 1999), with the majority located in the relatively floristically impoverished countries of the Northern Hemisphere.

In 1992 world attention was focussed on plant conservation by the Convention on Biological Diversity (CBD). Signed by approximately 175 countries at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil (the 'Earth Summit'), this convention provides opportunities for botanic gardens and networks to become involved in global and national conservation issues and the sustainable use of biodiversity. It very clearly outlines the activities which botanic gardens need to engage in to assist governments in achieving their objectives on maintaining biological diversity, and that botanic gardens must play an integral role in both species and habitat management (Glowka et al, 1994)

Many botanic gardens, particularly in the western world have taken on board issues relating to plant conservation very effectively eg. Kings Park Botanic Gardens in Western Australia has made remarkable advances in native plant conservation, reintroduction and attraction of private sector

funding, Kirstenbosch Botanic Garden in South Africa is also renowned for its achievements in native plant recovery and conservation research. Mission statements have been adopted by most botanic gardens highlighting their commitment to research and the maintenance of plant diversity. Their role within the community as prime education sources has also been utilised, with great affect, in strengthening their position as major conservation bodies.

At the 2nd World Botanic Gardens Congress in Barcelona, Spain in 2004, 20 targets for botanic gardens to work towards for 2010 were developed. These targets provide a way of measuring the objectives of the Global Strategy for Plant Conservation and the International Agenda for Botanic Gardens in Conservation (BGCI, 2000), enabling botanic gardens to implement the articles outlined in the CBD.

The articles of the CBD have provided the impetus and stimulation for governments to catalogue and protect their own biodiversity, but conservation costs money. Not all countries have the finance, technology or skills available to them to formulate and implement biodiversity strategies and action plans effectively. How do they fit into the global plan?

One of the underlying declarations of the CBD is the responsibility of developed countries to assist their developing country counterparts in achieving the common goal of protecting global biodiversity. Following the collapse of the European colonial empires and the new independence of many countries, some botanic gardens were, 'left languishing as botanically rich public parks', and for much of this century international co-operation between gardens has declined (Heywood, Wyse Jackson 1991). However, the newly acknowledged role of botanic gardens in plant conservation has injected new life into these gardens, and it is now up to the botanic garden community to once again engage in mutually beneficial collaborations.

The CBD states in Article 9 that in ex situ conservation activities should be undertaken

'as far as possible and as appropriate and predominately for the purpose of complementing in situ measure in the country of origin', but also states responsibility in providing financial and other support for ex-situ conservation and 'the establishment and maintenance of ex situ conservation facilities in developing countries'. (Glowka et al, 1994).

By creating networks and collaborations of botanic gardens incorporating developed and developing countries, the necessary skills and technological transfer to actively conserve biodiversity on a global scale can be realised. In the 1989 Botanic Gardens Conservation Strategy (BGCI, 1989), the idea of formal co-operative agreements such as twinning arrangements between botanic gardens of the north and south was discussed as a method for good liaison. This idea was briefly discussed again at the Botanic Gardens of Australia and New Zealand Conference, (BGANZ), Hobart in 2005.

An idealist view some may say, particularly in today's climate where despite their commitments to the CBD and recognition of botanic gardens role in the implementation of many of its goals, many governments are reducing their

financial support for the botanic garden sector. As this funding is reduced, the inevitable cutbacks and rationalisation of botanic gardens operations take place, as they strive to survive in the privatised world. An observation is that a very insular approach to plant conservation is now emerging, with the fear that international collaborations may prove costly and put too much strain on already stretched resources.

One would argue that botanic gardens must adapt to the new financial environment with vigour and fully exploit their status and position in the conservation arena. It has been stated that: -

'In 100 years botanic gardens will be judged not by the numbers of relictual species maintained as a botanical 'living dead', but by the numbers of viable species and habitats surviving as a result of botanic garden intervention, and importantly, by their contribution to economic and social development' (Muller et al, 1994).

Will the relatively 'wealthy' botanic gardens of the western world also be judged on their contributions in maintaining the biodiversity of their developing country neighbours, and therefore global biodiversity? Are we unjustifiably concerned as being seen as a second generation of colonialists by aiding work in developing countries?

Certainly these are questions that require attention, but the underlining issue is how much time do we have to be complacent? Already, it is estimated that 73% of the earth's land surface, other than rock, ice and barren land, is either human dominated or partially disturbed, with only 27% undisturbed. As the human populations grow, demand on the earth's resources will increase. By the year 2025 the world population is projected to total about 8.3 billion, compared with the currently estimate of around 6 billion. In Asia it could grow from a current 3.46 billion to nearly 4.96 billion, (Maunder and Clubbe, 1999).

So, why should botanic gardens get involved? What do we have to offer? Listed below are some reasons why botanic gardens need to become more involved in plant conservation in developing countries: -

- 1 We have expertise in taxonomy and plant identification. The taxonomic impediment has been recognised globally as a problem retarding the documentation of plant diversity, (Maunder and Clubbe 1999), and therefore hampering effective conservation measures.
- 2 Wide knowledge of germination, propagation, seedling establishment and plant growth requirements, often of difficult or problematic species.
- 3 We have facilities for long-term maintenance of living plant material in various forms, (although this cannot be relied upon indefinitely, e.g. it is usually only the more horticulturally-robust species which tolerate fluctuating standards of horticultural care, Maunder, Higgins and Culham, 1998), and seed technology is limited to a knowledge of the physiology of the seeds in question.
- 4 We are integrated in the academic and applied botanical research communities.
- 5 We have high visibility and visitation in many urban communities, as loci for awareness and education (Elias, 1987)

Botanic Gardens are recognised as horticultural and botanical centres of excellence and have a great deal of influence on their local communities. How can we apply this influence to actively promote conservation, particularly in developing countries?

1 Conservation activities should be linked to utilise horticulturists and horticultural societies greatest assets – their horticultural expertise and boundless enthusiasm. Can these assets be harnessed to support projects in developing countries on the conservation frontline? (Mauder et al, 1998). Botanic gardens influence on promoting indigenous species has achieved dramatic results eg. the Botanic Gardens Trust, and the Parks Dept of NSW and their release of the Wollemi Pine into the horticultural trade. Can our influence also be used to generate the same concerns for biodiversity in our neighbouring countries?

2 In 1989 it was estimated that 150 million visit botanic gardens worldwide (BGCI 1989). This figure has probably grown considerably during the last 17 years. If botanic gardens are going to be effective in conserving biodiversity we need to raise the public profile of plant conservation. We have a long tradition of displaying exotic and intriguing plants from different countries. These flagship species could be waved more vigorously to attract the attention of donor agencies and stimulate public interest in the conservation of biodiversity in developing countries.

EDUCATION = CONCERN = SUPPORT

3 How effectively are we targeting our objectives? Often we will present and interpret the problems to our visitors but not offer any solutions. Rare and Threatened Gardens are a terrific innovation, highlighting threats to plants and habitats worldwide, however, if we do not introduce ways in which our audience can be involved in maintaining the biodiversity of these areas, are we only doing half the job?

4 Botanic gardens have been communicating effectively between themselves regarding plant conservation for nearly 2 decades since the first BGCI conference on Botanic Gardens and the World Conservation Strategy, but are we only preaching to the converted? We need to continue this communication between ourselves but also market our ideas to the broader community. If the rest of the world doesn't know about our concerns they cannot support our programmes, cannot give us money, cannot vote for legislators to encourage conservation work, and cannot teach their children about the importance of saving plants (Wachel, 1991). Marketing is the new science for botanic gardens. By using and learning from conservation agencies that have developed very effective marketing strategies, eg. the Eden Project, this new medium can be used to generate the necessary funding for conservation projects.

5 Will we be able to join the scientific community and actively promote all the facts concerning the conservation of our planet, without the fear of feeling the financial backlash from our governing bodies? Botanic Gardens are often held in high regard by the public, as scientific institutions we should embrace the information we have and provide it honestly, openly and encourage debate.

6 Botanic gardens must not only limit their influence to their own political boundaries. There are already significant steps being made by botanic gardens to address issues of biodiversity loss in other countries.

Examples of international collaborations are: -

- The Royal Botanic Gardens, Kew, has had much experience in species and habitat recovery in St Helena and Mauritius.
- Brest Botanic Gardens has species recovery programmes in Reunion (Hankamer C, 1998),
- The Royal Botanic Gardens, Sydney, provided technical support for a sustainable agriculture project and medicinal plants program North Viet Nam during 1994/95.
- BGCI has also a project working in Viet Nam developing a new botanic garden and medicinal plant nursery.
- The Royal Botanic Gardens, Sydney collaborated on a joint conservation program with Bogor Botanic Gardens from 2000/03.
- The Royal Botanic Gardens, Kew, and its international training programmes in Plant Conservation Techniques and the Botanic Garden Management Course have been extended to include, in- country regional plant conservation courses in East Africa.

However, botanic gardens involvement in these projects is still the exception and not the rule. There is a need for further commitment to practical conservation programmes in developing countries, and an urgent need to secure sound financial support for these programmes.

7 The 'marketability' of conservation is often under estimated. How can botanic gardens influence commercial horticultural to sell not only the product, but also the whole biodiversity angle in promoting their sales of exotic flora? This can be a very lucrative marketing ploy as the General Foods Company in Denmark discovered. They chose to provide support for Brazilian rainforests and redesigned the way they marketed their coffee product to their consumers. Each time someone bought their coffee, a contribution was made to save the rainforests. The company found that by supporting conservation their product was given a marketing edge over their competitors. The result was a 10% increase in sales during the promotion period (Wachtel P S, 1991). Oxfam, and their 'Fairtrade' company has also exploited this angle very well. Wouldn't it be marvellous if, for each African Violet sold around the World a contribution was made to conserve the East Usambara Mountains in Tanzania, the primary habitat of this species?

It is encouraging that the focus of the 3rd Global Botanic Gardens Congress in 2007 will be the Global Strategy for Plant Conservation. It is also fitting that it is to be held in Wuhan, China, the first gathering of this kind to be held in Asia, a region undergoing massive growth putting further pressures on the conservation of biodiversity. It has been stated that south-east Asia 'has the highest rate of deforestation of any major tropical region and could lose three quarters of its original forest by 2100 and 42% of its biodiversity' (Sodhi, Koh, Brook, Ng, 2004).

It is hoped that the Australian Botanical Gardens may be able to unite and assist our northern neighbours in the conservation of their and indeed our global plant diversity.

Lorraine Perrins
Royal Tasmanian Botanical Gardens

Update on the Auckland Botanic Gardens Threatened Native Plant Garden - May - August 2006

The Threatened Native Plant Garden has proved to be one of our foremost attractions since its formal opening on that balmy, almost summer-like day on the 29th September 2001 by the Rt. Hon. Helen Clark, Prime Minister of New Zealand / Aotearoa.

Accolades have been showering down upon this garden from a wide-ranging audience despite its 'unfinished' appearance. Our visitors from these islands and overseas have cherished the opportunity to become informed about our unique and treasured natural heritage.

The Threatened Native Plant Garden is probably unique in so far as threatened plants are being show-cased together with naturally occurring associated non-threatened species in replicated habitats.

Replicating habitats, albeit a mere 'snapshot' of our wild environment, has meant that we have been able to show the natural diversity of our region from the mighty world of the Waitakere Ranges to the local lavafields of what is now industrial Penrose! For the past five years we have been trying very hard to secure funding for the completion of the remaining coastal components i.e. salt meadow, dunes, including stabilised and foredunes, and shellbanks. Finally news came through earlier this year (2006) that our application to the Lottery Environment and Heritage Fund had been successful to the sum of \$33,100 with the Friends of the Gardens contributing a further \$13,000.

Botanic Gardens staff prepared concept design sketches after a visit to the Puhinui Reserve on the Manukau Harbour. This reserve has regionally significant saline wetlands and provided much inspiration for this amazing project. Excavation work begun on the 22nd May with the site being re-contoured and construction undertaken by Dave Johnson of Outdoor Images. Brief descriptions of the vegetation categories that we are simulating:

Salt meadow / marsh

A replicated sequence of vegetation zones within this saline wetland viz. below mid-tide, above mid-tide, reached only by spring tides, reached only by storm tides is planned. The last three are usually referred to as lower-, middle-, and upper-marsh respectively. Key species will be mangrove (*Avicennia marina*),



Saline wetland
Photo: Jack Hobbs

glasswort (*Sarcocornia quinqueflora*), coastal rush (*Juncus maritimus*), oioi (*Apodasmia similis*), *Leptinella tenella*, *L. dioica* subsp. *dioica*, *Samolus repens*, *Selliera radicans*, *Suaeda novae-zelandiae*. Threatened species will include NZ spinach (*Tetragonia tetragonioides*), *Mimulus repens* and *Puccinellia stricta*



Coastal bluff with boardwalk
Photo: Jack Hobbs

Sand dune (foredune and stabilised dunes) / dune forest

The sand dune habitat will interpret the fragility of coastal dunes and explain the importance of its integrity in maintaining diverse coastal ecology. Coastal dune systems within the Auckland region are collapsing due to inappropriate recreational disturbance. Why do we continue to allow fragile coastal areas to be used for vehicular traffic? Interpretation will include solutions on how everyone can help protect these fragile ecosystems. The endemic, sand-binding plant pingao (*Desmoschoenus spiralis*) will be a feature plant of the replicated mobile dune together with *Spinifex sericeus*.

A stabilised dune system will be established showing the transition from mobile dune to dune forest. Species to be included: *Carmichaelia australis*, *Corynocarpus laevigatus*, *Dysoxylum spectabile*, *Leptospermum scoparium*, *Kunzea ericoides*, *Mida salicifolia* and the regionally threatened *Hebe diosmifolia* and *Pseudopanax ferox*.

Shell bank

The shell bank will feature transient species such as the NZ spinach (*Tetragonia tetragonioides*) now rarely found in the region and the closely related, commonly occurring native spinach (*Tetragonia implexicoma*). The threatened sand tussock (*Austrofestuca littoralis*) and Cook's scurvy grass (*Lepidium oleraceum*) will also feature.

Progress to date – August 2006

Eighty cubic metres of topsoil, 40 of Muriwai sandstone, 20 of pumice and 65 bags of cement are just some of the materials that have been used to complete the coastal habitats of the Threatened Native Plant Garden.

The project has been completed on schedule and within budget, much to the relief of my Manager. Eighty eight metres of hypertufa (equal parts by volume of cement, sand and finely granulated bark) have been laid to simulate coastal peat/mud deposits behind which will be planted a salt –marsh community. The entire area already blends in extraordinarily well with the existing habitats and tends to soften the hard landscaping of the watercourse.

Planting has already begun with harakeke (*Phormium tenax*), a particularly good form that Brent Torrens (*former Curator of the Native Plant Collection*) and myself collected on Moturemu Island. in the Kaipara in 1996, oioi (*Apodasmia similis*), *Juncus maritimus var. australiensis* and *Cyperus ustulatus* all planted in the eutrophic lowland swamp. The sandstone bluff is an extension of the original bluff that was constructed in 2001 and extends over to the other side of the boardwalk. Species in this area include the critically endangered napuka (*Hebe speciosa*); nationally rare and locally presumed extinct *Leptinella rotundata* (this species is in serious trouble because it's gynodioecious hence a constraint on its sexual reproduction); *Sonchus kirkii* the native puha which was thought to be extinct until a few years ago when it happened to be rediscovered on a Auckland's West Coast; *Scandia rosifolia*, *Poa anceps*, *Polystichum neozelandicum* and many more.

As I write (30th August) the irrigation system is being installed in the areas designated as dune forest, stabilised and foredunes, shellbark and salt meadow. This irrigation conduit is Aquapore TM , a water weeping hose made from recycled tyres. The pipe is buried beneath the surface so as to reduce the amount lost through evaporation which could be as much as 70%. If 6mm of water is required then the hose is left on for 50mins per week or if 24mm is required left on for 200mins.

Interpretation panels for these 'new' components will be crucial for the messages that we would like to send to our visitors about the poor state of the Region's remaining coastal ecology. The fragility and vulnerability of these coastal salt meadows and dunes need all the protection that we can afford them.

Now that this project is well under way our attention now turns to funding for the South Pacific pavilion, which has been planned for this garden since 1999. I trust that it won't take another five years to secure funds for this development! The pavilion will be of a contemporary design with overhead sailcloth, low-rammed earth walls and timber slatted seating - a place to ponder, rest, shelter and perform cultural performances such as harakeke weaving and storytelling.

We look forward to welcoming our visitors to these dynamic new developments.

Appendix

Species list for Stage 11 of the TNPG
coastal habitats – August / September
2006

Sand dune (stable and mobile)

Austrostipa stipoides
Baumea juncea
Carex pumila
Carex "raotest"
Coprosma acerosa
Coprosma propinqua
Cortaderia splendens
Desmoschoenus spiralis
Euphorbia glauca
Ficinia nodosa
Gunnera dentata
Muehlenbeckia complexa
Ozothamnus leptophyllus
Spinifex sericeus

Salt marsh:

Apodasmia similis
Avicennia marina
Cotula coronopifolia
Ficinia nodosa
Juncus maritimus var. *australiensis*
Leptinella tenella
Plagianthus divaricatus
Samolus repens
Sarcocornia quinqueflora
Selliera radicans
Triglochin striata

Shell bank:

Calystegia soldanella
Carex pumila
Euphorbia glauca
Lepidium oleraceum
Tetragonia implexicoma

Dune forest:

Canopy species
Alectryon excelsus
Elaeocarpus dentatus
Knightia excelsa
Kunzea ericoides
Nestegis montana

Sub-canopy species

Carpodetus serratus
Corynocarpus laevigatus
Dysoxylum spectabile
Lophomyrtus obcordata
Melicytus ramiflorus
Melicope ternata

Understorey species

Carmichaelia australis
Coprosma crassifolia
Coprosma grandifolia
Coprosma repens
Coprosma rhamnoides
Cordyline australis
Corokia cotoneaster
Geniostoma rupestre
Hebe diosmifolia
Hebe macrocarpa
Leucopogon fasciculatus
Macropiper excelsum
Melicytus micranthus
Myrsine australis
Olearia albida var. *angulata*
Pittosporum ellipticum
Pseudopanax ferox
Pseudopanax crassifolius
Pseudopanax lessonii
Streblus heterophyllus

Ground cover species

Adiantum hispidulum
Asplenium flaccidum
Asplenium oblongifolium
Astelia solandri
Carex "raotest"
Collospermum hastatum
Doodia australis
Leptostigma setulosa
Microsorium pustulatum
Oplismenus hirtellus ssp. *imbecillis*
Parsonsia heterophylla
Pellaea rotundifolia
Polystichum neozelandicum
Pteris tremula
Uncinia uncinata

Eutrophic lowland coastal swamp:

Apodasmia similis

Carex virgata

Cyperus ustulatus

Juncus maritimus var. *australiensis*

Phormium tenax

Coastal bluff:

Adiantum hispidulum

Apium prostratum

Arthropodium cirratum

Asplenium flaccidum

Astelia banksii

Austrostipa stipoides

Coprosma acerosa

Coprosma repens

Cortaderia splendens

Disphyma australe

Doodia australis

Fuchsia procumbens

Hebe speciosa

Leptinella rotundata

Lobelia anceps

Muehlenbeckia complexa

Phormium cookianum

Poa anceps

Polystichum neozelandicum

Senecio australis

Sicyos australis

Sonchus kirkii

Tetragonia implexicoma

Steve Benham

Botanical Records, Plant Conservation - Auckland Botanic Gardens.

TNPG habitat completion – May 2006



Feature Garden

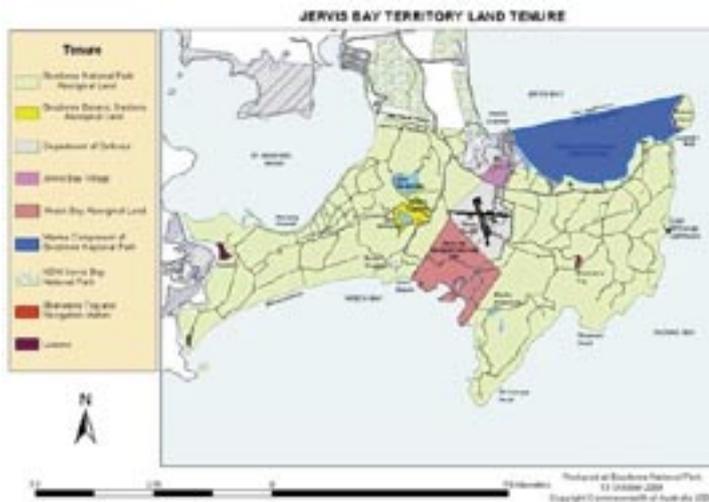
Booderee Botanic Gardens

Booderee Botanic Gardens is Australia's only Aboriginal owned Botanic Gardens. The indigenous people of the Wreck Bay Community own and jointly manage Booderee Botanic Gardens and the surrounding Booderee National Park in the Jervis Bay Territory some three hours drive south of Sydney. In the local Dhurga language, Booderee means "Plentiful Bay" which eloquently describes the abundant pristine waters of neighbouring Jervis Bay and its environs.

Bryan Harty, Curator and the Botanic Gardens staff chronicle the history and development of this unique Botanic Gardens, included on the register of the National Estate as an important example of mid-twentieth century botanic gardens established to display native plants.

The Booderee Botanic Gardens were formerly known as the Jervis Bay Botanic Gardens, which came into existence in 1951 as an annexe of the Australian National Botanic Gardens (ANBG) in Canberra. Despite its location, Jervis Bay Territory is actually a part of the Australian Capital Territory having been surrendered by New South Wales in 1915 so that the national capital could have a sea access that incorporated its newly established Royal Australian Naval College.

The Botanic Gardens site was selected by ANBG with the primary focus of the Gardens being the cultivation of frost-sensitive plants from all over Australia. The moderate coastal climate of Jervis Bay providing excellent growing conditions for many plants unsuited to Canberra's colder climate.



History

The Booderee Botanic Gardens occupies the site of what was once Bhoweree farm which was established by a wealthy Irish immigrant, Octavius Beale, in the early 1900s. The farm comprised around 7,000 ha of Crown lease-hold land which Beale planned to use to grow Valonea Oak for piano frames. Thousands of trees were planted but the plantation failed within 2 years. A later enterprise attempted to grow hemp at the site, but this too failed. In the end, the farm concentrated on small-scale grazing and dairying. Today there is little evidence that remains of the farm and its buildings apart from some photos and the chimney in the Green Hut.



The Green Hut was built in 1951 to accommodate field parties from the ANBG who travelled from Canberra to undertake plantings at the Jervis Bay Annex from the mid-1950s. The Booderee Botanic Gardens were initially developed on the south west-facing slopes around Lake McKenzie roughly in the centre of the present Gardens site. Expansion was limited by the irrigation reticulation system which extracted water from

Lake McKenzie and available human and physical resources. Consequently, large patches of naturally occurring vegetation remain between much of the planted areas of the Botanic Gardens. This pattern of establishment continued until the mid-1960s when permanent staff were appointed to work on site.

Involvement of Wreck Bay Community members in the development of the Botanic Gardens increased with a general rising in the level of activity at the Gardens in the late 60s. In 1969, the Gardens were staffed by a Manager (called the Gardener-in-Charge) and eight Koori staff from Wreck Bay Aboriginal Community - seven gardeners and a leading hand.

Community members have made a major contribution to the development of the Gardens through an era where most things were achieved, not with high cost machinery, but with individual and team based effort.



In 1974 the Gardens were finally opened to the public. In the eighties the site was enclosed with deer proof fencing and later the entry pillars and gates were erected using sandstone blocks left over from the construction of the Australian War Memorial. The connection to ANBG can still be found in the carved lettering on these pillars that proudly proclaim its previous title ... though now made less obvious by the advance of lichens and a patina of age.

From the 1980s, development was on the basis of in-fill rather than expansion further into the bushland. There was also increasing recognition that the bushland area was an important component of the Gardens collection, as it represents the regional flora, contributed to the landscape setting of the developed areas, and provided a transition from the developed areas to the naturally occurring vegetation.

In 1995, the title to the Jervis Bay National Park and the Jervis Bay Botanic Gardens was conferred on the Wreck Bay Aboriginal Community Council (WBCC), on the condition these areas were leased back to the Director of National Parks and Wildlife as a national park and botanic gardens.

The Park and Botanic Gardens are jointly managed in accordance with relevant legislation, a management plan and the decisions of the Booderee National Park Board of Management, which was established in 1996. These management arrangements have resulted in greater involvement for the Wreck Bay Community in decision-making processes. The best example of this is the ten member Park Board which has a majority of representatives comprised of traditional Aboriginal owners from the Wreck Bay Community. All activities within the Botanic Gardens are directed by a plan of management that has been approved by this Board. It is the Community's ultimate goal to have sole management of these lands comprising the national park and gardens.

In 1997, the Wreck Bay Community Council chose Booderee National Park and Booderee Botanic Gardens as the new name for the Park and Gardens. The change in ownership also meant a change in the relationship with ANBG.

In May 2000 amendments were made to the original proclamations of the ANBG and the Booderee National Park which resulted in Booderee Botanic Gardens ceasing to be a part of the ANBG and instead added to the area of the Booderee National Park.

2001 saw the Booderee Botanic Gardens celebrate its 50th Anniversary with the placement of a plaque in the Waratah Lawn Area recognising the shared history of the Gardens and the unique role of members of the Wreck Bay Community in its development. Today it is run in a similar fashion to the other jointly managed National Parks, Uluru Kata Tjuta and Kakadu, under the direction of the Park Board and the Director of National Parks (within the Australian Government Department of Environment and Heritage) and in consultation with the Wreck Bay Community Council, the Botanic Gardens being managed as a "Special Purpose Zone" within the National Park.



Geography

Booderee National Park covers an area of 6312 hectares, which includes 875 hectares of marine environment. The Botanic Gardens zone is 80 hectares in area. The base rock of the Gardens is sandstone and much of the site is overlain by old sand dunes. The site is dotted with sandstone outcrops and dissected by moist gullies.



Nearly one third of the Botanic Garden is occupied by Lake McKenzie. It is a naturally-occurring freshwater lake which formed when south westerly flowing streams were blocked by shifting sand dunes. It is perched on impermeable weathered clays and bedrock and permeable sand. The dark brown water

has been stained by pigments from decaying vegetation. Sunlight cannot penetrate far into the waters and therefore the lake is very cold. It is the water supply for the Gardens irrigation system. Due to high levels of organic nutrients at depth, the pH is low (4.5 to 6.5) with comparatively low conductivity given its proximity to the coast.

Surprisingly, the lake does not support fish, but it does support a large population of Eastern Long-necked Turtles. The lake level fluctuates to a maximum depth of 10 metres. One creek and a permanent spring feed the lake but the lake has no outlet - rather it loses water through permeation into the underlying sand and through evaporation.

The natural vegetation

Partly as a consequence of the history of the development of the Botanic Gardens, and partly in recognition of the value of the retained bushland areas, there are two management areas within the Gardens: the developed area and the natural area. The horticultural development of the Botanic Gardens has been largely confined to areas to the north and north-east of Lake McKenzie. The natural area is the unplanted area and requires lower levels of management, having fewer paths and facilities than the developed area.

The natural vegetation of the Botanic Gardens provides well preserved examples of coastal plant communities of the Jervis Bay region which have affinities with the Sydney Basin .

There are small pockets of rainforest and heath communities that contain plants that are representative of coastal regions ranging from eastern Queensland to southern Victoria. As well as providing good examples of local plant communities and species, the retained vegetation contributes to the landscape setting of the Gardens and provides educational and interpretive opportunities. The bushland area also acts as an important buffer between the planted areas and the rest of the National Park, inhibiting the spread of non-local species.

The natural vegetation of the Botanic Gardens can be divided into three main vegetation communities:

Heathland

The heathland community of the Gardens is predominantly shrub vegetation dominated by *Hakea teretifolia*, *Banksia ericifolia* and *Casuarina distyla* with a diversity of other shrub, sedge and ground cover plants. Other species present include *Xanthorrhoea resinifera*, *Banksia serrata*, *Epacris* spp, *Darwinia* spp. and *Actinotus minor*. The heath generally occurs on shallow infertile soils. Where drainage lines are present the heath also contains *Gahnia* sp, the coral fern - *Gleichena* sp., and rushes, *Restio* spp, together with mats of insectivorous sundews, *Drosera* spp.



Woodland

The dominant trees in this vegetation type are Bloodwoods (*Eucalyptus gummifera*), White Scribbly Gums (*E. racemosa*) and *Banksia serrata*. The shrub vegetation includes a number of species also found in the heath. This vegetation type occurs on infertile and drier soils within the Botanic Gardens.

Open Forest

The main tree species are Blackbutt (*Eucalyptus pilularis*) and Sydney Peppermint (*Eucalyptus piperita*) with an understorey of *Acacia longifolia* and *A. suaveolens*. A number of smaller shrubs and ground covering ferns are also present.

Other species present include Turpentine (*Syncarpia glomulifera*), Pigeon Berry (*Monotoca elliptica*), Christmas Bush (*Ceratopetalum gummiferum*) and She-oak (*Allocasuarina littoralis*). This vegetation type occurs in areas where the soil is deeper and slightly more fertile.

Significant plants

The Jervis Bay region is a very important location in relation to plant conservation. It supports a significant number of rare or endangered species many of which reach their northern or southern limit in the area. Other species such as *Grevillea macleayana*, *Leptospermum epacridoideum*, *Platysace stephensonii*, and *Pultanaea villifera* are largely restricted to the area around Jervis Bay.

There is a population of the Magenta Lily Pilly (*Syzygium paniculatum*), which is listed as a threatened species at the state and federal level, occurring naturally within Booderee National Park and Botanic Gardens. Probably the most significant and unique species is *Dracophyllum oceanicum*, as it only occurs on cliffs near the sea at Booderee and Beecroft Peninsula. This was previously thought to be the more common *D. secundum*, but now a taxon in its own right

Prostanthera densa and orchids such as *Corybas undulatus* and *Prasphyllum despectans* also have a restricted distribution in Jervis Bay and elsewhere.

Aboriginal Involvement

Most households from Wreck Bay have had members who worked in the Botanic Gardens between the late 60s and the present. Currently there are two staff members who are the third generation of their families working at the Gardens.

Originally, Community members were employed as gardeners or leading hands. Today that role has expanded to encompass horticultural and interpretive components, as well as other roles in the Park, such as law enforcement and fire management. Wreck Bay Community members who currently work at the Gardens act as ambassadors for their Community both within Booderee and more broadly in the region. They currently make up half of the staff at the Botanic Gardens.

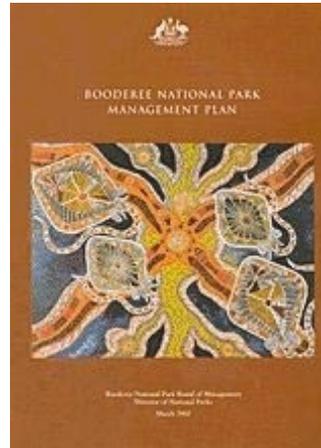
With the ultimate goal of sole management of the Park and Gardens, the participation of Community members is encouraged through training and career development opportunities within the Park Management structure. Initiatives such as training in horticulture and business (frontline management) are currently being undertaken by Koori staff at the Gardens. A number of service functions have been outsourced to the Community Councils contracting business. Road maintenance, cleaning operations, building construction/maintenance and some basic grounds maintenance activities are provided through Wreck Bay Enterprises Ltd.

Also, as part of the process of capacity building, the Wreck Bay Community Development and Employment Program (CDEP) has engaged in project based on-the-job training activities within the Botanic Gardens.

Importantly, Community members who once worked at the Gardens are now representatives on the Booderee National Park Board of Management and are directly involved in the decision-making processes for both the Park and the Botanic Gardens. The challenge for them, and for the rest of the Board, has been to define a new role for Booderee Botanic Gardens in the light of the current joint-management arrangements and the changed relationship with the Australian National Botanic Gardens.

Management

Since 1995 the Booderee Botanic Gardens have been managed as part of the administration responsible for Booderee National Park. The inclusion of the Gardens within Booderee National Park has given rise to some unique challenges as activities are regulated by the Commonwealth Environmental Protection and Biodiversity Conservation Act. Under s.354 of the EPBC Act a person must not kill, injure, take, trade, keep or move a member of a native species in the Park except in accordance with a management plan in operation for the Park. "Native species" includes any plant species native to Australia, so movement of plants in the Botanic Gardens must be in accordance with a management plan. So, too, must action to destroy native plants which are considered weeds or potential weeds. Under regulation 12.20 of the EPBC Regulations, a person must not cause or allow a plant to be taken into the Park unless it is provided for by, and carried out in accordance with, a management plan in force for the Park; or is authorised by a permit, or under certain other conditions (regulation 12.06). To allow certain horticultural practices to take place in the Gardens it is treated as a separate zone within the Park and given special management prescriptions relating to the activities permitted within that zone.



Those management prescriptions are incorporated in the Booderee National Park Plan of Management which was developed following extensive public consultation and came into effect in April 2002. It is due for review in 2009. It outlines objectives and specific management prescriptions for all areas of the Park, including the Botanic Gardens. The Plan of Management describes 82 management prescriptions for the Gardens which are to be implemented during the seven year life of the plan. These cover management of the Living Collection; the Nursery and the Herbarium; Lake MacKenzie; weeds, pests and pathogens; research; education and interpretation; and the relationship between Booderee Botanic Gardens and other Botanic Gardens.

The development and approval by the Park Board in 2003 of a Collections Policy was an important step in defining the Botanic Gardens direction. It reflects the key objectives for the Gardens in the Plan of Management and outlines the direction that the Living Collection will take into the future. This Collections Policy is available on the Booderee National Park and Botanic Gardens web site [www. booderee.gov.au](http://www.booderee.gov.au).

Objectives for the Booderee Botanic Gardens as defined by the Management Plan are to:

- assemble, display and interpret a representative collection of Australian plants focussing on south-east coastal flora;
- provide opportunity for demonstration of and education about Aboriginal use of plants;
- provide visitor, educational and scientific services; and
- support the use of appropriate local native plants in Booderee and the surrounding region in restoration/rehabilitation.

The Collection

The Collections Policy for the Gardens identifies key themes that guide its development.

Ethnobotanical

Interpretative programs based on human uses of plants are valuable educationally and culturally. As Booderee is the first major Botanic Gardens in Australia to be owned by an indigenous community, there is great potential to demonstrate traditional and current links with the native flora. This theme includes plants that display aesthetic, scientific, historical, or social values for past, present, and future generations.

There is a collection developed to interpret Aboriginal plant use for both traditional and current usage, eg shelter, clothing, baskets, calendar (indicator species), ornamental, bush tucker, tools, and medicines. There are other plants within the BBG collection that have historical or heritage associations.

With the support of the Community and the Park Board, the Aboriginal Plant Use theme will be further developed whilst plants of historical or heritage importance will be retained.

Ecological / Geographic

These displays group plant species from similar environments or from the same geographic areas providing opportunities for visitors to understand natural communities. Grouping species from similar environments also facilitates management of their horticultural needs.

The rainforest section is the main ecological theme developed so far. Its development has taken advantage of the natural features and vegetation of the Gardens, incorporating local *Syncarpia*, *Callicoma*, *Todea* species, and is a major attraction of the Gardens. The natural rainforest has been altered over time with the planting of many cultivated species within it. It will be developed further to better represent different rainforest types (eg coastal, temperate, littoral etc.).

The other naturally occurring plant communities within the Gardens are:

- Heath
- Woodland
- Forest
- Wetland

These existing naturally occurring communities - Heath, Woodland and Forest shall continue to exist in their present form. But these communities will also be represented in cultivated areas of the Living Collections. This will enable the Gardens to better display, interpret, and represent plant species in these communities, whether they are found within Booderee or beyond and increase the knowledge of the horticulture of these plants. The Heath and Rainforest communities will be given highest priority

Conservation

These are plants that require protection due to their legislative status (listed plants in either NSW or Commonwealth Acts), or because they are locally under threat. The propagation and cultivation of threatened species provides a source of plants for reintroduction into their natural habitats. A secure ex situ population also provides insurance against total extinction of the species in the event of its wild populations becoming extinct.

The Living Collection holds a number of listed species, some from the local region and others from further a field. The rainforest area for example contains the locally endemic *Syzygium paniculatum*.

Liaison between NSW NPWS and other relevant organisations and the BBG will continue to determine the role that BBG can perform in assisting with the conservation of threatened flora in the region. This includes ex-situ cultivation of rare and endangered plants, or assistance with conservation of plants in-situ. Threatened plants from outside the region will continue to be grown as a back-up for other collections.

Horticultural

Horticultural displays are designed to promote an appreciation of the aesthetic values of native flora in landscaping. They include cultivars (be they either hybrid or selected forms), as well as those found growing in the wild. Booderee Botanic Gardens has a number of registered cultivars in the collection, with emphasis on *Callistemon* and *Grevillea* cultivars.

With future development greater emphasis will be placed on using plants other than cultivars to promote the local native flora in an aesthetically pleasing way. Cultivars will be considered for use in the Living Collections if related natural plant species do not display effectively. Where cultivars are used, priority shall be given to those based on plant species from the prescribed geographical area.

Taxonomic

Displays that illustrate the scientific classification or evolution of plants are a traditional and effective way to provide opportunities to compare the similarities and differences within taxonomic groups. Taxonomic displays are valuable tools for teaching and research. The following taxonomic collections, all family based, exist in the Booderee collection: *Arecaceae*, *Casuarinaceae*, *Mimosaceae*, *Myrtaceae*, *Proteaceae*, *Rutaceae*. Some of the naturally occurring Cryptogams (lower plants – including fungi, mosses, algae and lichens) have also been labeled in the BBG.

In the future a number of these existing taxonomic collections will be phased out as stand alone displays and incorporated into the other themes such as ecological or ethnobotanical.

The original role of the Gardens as a frost-free annex of the Australian National Botanic Gardens has shifted with the changing legal and administrative arrangements for the Booderee Gardens. Over the last few years there has been an increasing emphasis on more fully representing the regional flora; with the 'region being defined as south east coastal Australia east of the Great Dividing Range.

The living collection of the Booderee Botanic Gardens contains open-ground plantings of some 1300 taxa, which are cultivated and displayed to facilitate the study, conservation, promotion and enjoyment of Australia's plant heritage.

Due to the past relationship with the ANBG, plants grown in the living collection of the Booderee Botanic Gardens are represented by vouchers held in the Australian National Herbarium. The herbarium collection, known as the Booderee Botanic Gardens Reference Herbarium was commenced in 1990. It houses a public reference collection of pressed plants which are duplicates of voucher specimens housed at the ANBG herbarium. From these vouchers accurate and up-to-date names are supplied to the Gardens for use on plant labels. Data from these herbarium voucher specimens, together with records of the living collection contribute to the Integrated Botanical Information System (IBIS) database, maintained by the Australian National Botanic Gardens in Canberra.



Exploring the Gardens

There are a number of marked paths that allow visitors to explore the Gardens:

The Blue Loop Walk

This short walk leads to the heart of the Gardens' landscape -Lake McKenzie. It passes by areas rich in ferns and by the "Green Hut" and former site of Bherwerre Farm. From there it is a short walk across the lower lawn to enter the rainforest.

The Yellow Nature Trail

This walk passes through areas of natural vegetation as well as cultivated areas. Near its beginning there are magnificent views across the Gardens. It leads into the rainforest precinct adjacent a collection of Australian and New Guinean rhododendrons. Mosses and lichens are plentiful on this walk.

The Orange Heath Trail

This trail introduces you to the Gardens' natural bush land of Scribbly Gums and heath. The walk also passes by cultivated garden beds featuring wattles, grevilleas, bottlebrushes and tea-trees.

The Bushland Trail

This trail can be reached by following the Orange Heath Trail. The trail leads through some of the different types of bushland found at the Gardens. The heathland, with its dense cover of small, woody shrubs is especially beautiful in spring, and is home to many small animals.

The NSW Christmas Bush (*Ceratopetalum sp.*) grows in sheltered areas, while tiny ground orchids, sundews and grass-trees are common throughout.

The Lake Trail

The Yellow Nature Trail leads to the beginning of this trail near the Rainforest Gully. This trail follows the edge of Lake McKenzie and offers beautiful vistas of the Gardens. The slopes leading to the lake shore are part of ancient sand dunes which have formed this natural lake. Most of the area is natural bush land.

Interpretative Programs

Booderee Botanic Garden staff and particularly Koori staff members provide interpretative talks on a range of topics that include:

- Background to the Booderee National Park & Botanic Gardens
- Plant use by the Koori people of Wreck Bay (bushtucker, bush medicines, tools and weapons, history)
- Natural plant communities of Booderee Botanic Gardens
- Bushland trail fire history
- Herbarium & nursery tour



The future direction of the Gardens

Booderee Botanic Gardens have special significance as the only Aboriginal-owned Botanic Gardens in Australia. This presents opportunities to develop distinctive themes and interpretive programs based on the rich natural and cultural heritage of the Jervis Bay area.

The opportunity to educate visitors about Aboriginal culture is seen as amongst the Garden's most important assets. The Wreck Bay Aboriginal Community is also keen to increase public awareness about the need to conserve our coastal areas. Both of these themes are reflected in the changing focus of the Gardens.

The development of a garden area to display plants of significance to the Aboriginal people of Wreck Bay will become a key focus of the Gardens. This theme will be developed more extensively throughout the Gardens to reflect their unique nature and to highlight their important role in promoting Aboriginal culture.

The emphasis of the collection will become the plants of SE Australia with a focus on those plants of significance to Aboriginal people (food, fibre, medicines, tools and calendars etc). This is a plan for the future that truly reflects the traditional ownership of the Booderee Botanic Gardens and recognises and maintains the involvement of the local Wreck Bay Community with that future.

Bryan Harty, Curator Booderee Botanic Gardens and Booderee Botanic Gardens Staff