



LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON ENVIRONMENT AND TRANSPORT AND CITY SERVICES

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Submission Cover Sheet

Nature in Our City

Submission Number: 14

Date Authorised for Publication: 8 August 2018



7 June 2018

The Committee Secretary
Standing Committee on Environment and Transport and City Services
Legislative Assembly for the ACT
GPO Box 2010
CANBERRA ACT 2601

By email: committees@parliament.act.gov.au

Dear Sir/Madam

The Friends of the National Arboretum Canberra are pleased to provide our submission to the Standing Committee on Environment and Transport and City Services in response to the Inquiry into the value of the natural environment to an urbanising Canberra.

Yours sincerely

[Redacted signature]

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Chair
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Nature in Our City

A submission from the Friends of the National Arboretum Canberra
To The Standing Committee on Environment and Transport and City Services inquiry into the value of the natural environment to an urbanising Canberra.

The Friends (FNAC) are a dedicated community group that has been active in the support of the newly developing National Arboretum Canberra (NAC) since 2008. Currently FNAC has over 700 members who provide in excess of 20,000 hours per annum of voluntary service to the NAC. While the motivations of members vary, a commitment to a green and tree-scaped Canberra is clearly central to their interests. Accordingly this inquiry touches on significant issues to a large number of Canberrans. There are over 500,000 visitors to the site annually. There is an active MOU between the National Arboretum Canberra and the Singapore Botanic Gardens indicating the nascent international status of this young but special natural area in Australia's capital city.

We see the NAC as one of a great diversity of natural areas in the ACT and within urban Canberra in particular. The NAC provides a new and different way, for residents of the ACT and surrounds as well as visitors, to appreciate nature, relax, learn about nature here and abroad as well as carry out research on the natural resources of the site. The NAC is one of the ACT's major natural assets with a high standing locally, nationally and developing internationally.

We outline below many of the reasons why the NAC should be amongst the urban natural areas that the Committee and the Assembly focus on within the current review's terms of reference.

KEY NATURAL ENVIRONMENT VALUES OF THE NATIONAL ARBORETUM CANBERRA TO URBAN CANBERRA

- A location of extensive greenery within easy reach;
- A place to learn about biodiversity and its endangerment, both at home and across the world;
- A place to relax and enjoy the company of others within a natural setting;
- A place for exercise on diverse trails through wooded and grassy areas;
- A place for diverse activities in meeting places set in natural surrounds with spectacular views of the garden city and wooded mountains beyond.

The type of nature reserve offered by the NAC

The NAC grew out of the Territory's comprehensive response to the horrific bush fires of 2001 and 2003. Its aim was to become an *arboretum* – a special kind of garden of trees – that expanded the range of nature-based facilities of the ACT. Arboreta are fundamentally about aesthetic enjoyment by the public, education, learning, and research focussed on trees.

Around the world there is frequently admiration and identification with the core green areas of great cities (Central Park New York, Hyde Park London, Singapore Botanic Gardens, Bois de Bologne Paris) and in future decades the green spine of Canberra (from Mount Stromlo north across the Molonglo River valley, through the NAC, with links west through Aranda Bushland, Mt Painter, The Pinnacle, Kama Nature Reserve and back to the Molonglo River reserve; or eastwards to Black Mountain and the Australian National Botanic Gardens and on to the northern border). These corridors will play a huge role in the urban nature reserve system of significance for the inhabitants of this city.

Social Amenity

The NAC has exceeded all expectations in the level of social amenity that the citizens of Canberra as well as visitors to the Territory have shown. The integration into the social life of Canberra is demonstrated in the journey from initial concerns about whether it should be open for 3 or 4 days a week, to the resounding display that 7 days a week can scarcely contain the level of public support for the venture. The National Arboretum shows that the public love of, support for and interest in using open green spaces is very large in our City. It demonstrates that diversity in what and how nature is made available in the Territory is far from a finished story.

When it was being built, the NAC was described as being on the edge of the developed areas of Canberra, while only 6 km from the CBD. Already its open southern and western boundaries are being developed with new suburbs such that it will soon become a major island of open natural space within the urban area. It will need suitable access roads as well as facilities that will cater for substantial numbers of visitors arriving from the 'west', but retain the essential 'nature' aspects of the site. The Arboretum is young, but there is still a long way to go for it to reach maturity of its Forests and the offerings it makes to the public of Canberra and beyond.

The NAC also has the capacity to cater to the needs of the community for recreation and meeting spaces, though these latter could be greatly increased on site to the advantage of all. Community groups are constantly having to find new places for meetings as the rooms they rent disappear in constant re-moulding of vacant built spaces in the city. Properly planned and developed, the Arboretum can become a long-term home for a number of groups with similar views of nature.

The links to a diversity of cultural groups in Canberra contributes to the important diversifying of Canberra's and Australia's multi-cultural society. Each year, in recent times, different countries and cultures have been highlighted in Arboretum programs, with strong support from the High Commissions and Embassies based in Canberra. There are also a number of Citizen Science projects that aim to document the biodiversity of the site (tree growth monitoring, Frogwatch (Friends of the NAC), bird census (Canberra Ornithologists Group). The Friends have broadened visitor enjoyment and learning with food growing for small water-wise gardening, and the Canberra Cacti and Succulent Society have expanded the range and quality of the displays of these kinds of plants for growing in our dry environment. From weddings to a diversity of group meetings already using the site, there is now experience of what needs to be done to fully cater for such activities within the constraints of a nature-based site. These uses just show the breadth of social amenity being catered for by the NAC.

The significance of green and open spaces to not only a community's health but also their happiness is now well documented and in an appendix to this submission provides useful links for readers to follow up. It needs to be emphasised that in many of the great cities of the world, where there are large dense populations, there are now huge expenditures of public and private funds to try to re-

capture green and natural spaces for the reasons identified in this research. We have the opportunity in Canberra, as a 'bush capital' to preserve, rather than working to recapture green spaces. But we also have an obligation, in our planning and urban management, to ensure that future developments do not diminish the ratio of green and natural spaces that exists.

Economic Development

By providing a new form of access to nature, through high quality infrastructural facilities (award winning landscape designs together with award winning architectural structures) the site invites new and returning visitation. With visitor numbers still not peaking, after the 5 years since opening to the public, the economic value of this nature park is proving its place in the diversity of features that draws people to the national capital. The cost recovery and profit programs for education, special tours, and catered events are just beginning to explore the possibilities of the site. As long as these retain the essential core value of the natural environment of the Arboretum, there will be much more that can be realised in the sphere of activity on the site. In order to fully attain these economic and social values, then carefully evaluated proposals for new developments can further enhance the use of the site as a nature-based venue as well as integrate with existing uses and programs.

The NAC has become a widely discussed destination venue around Australia, and internationally among those people interested in parks and gardens. The NAC has recently ventured into the bonsai and penjing national and international locations for events with specialised interest groups. Further developments are limited by the onsite infrastructure constraints, but clearly point to unmet potential for further developments. While these might appear of only esoteric interest, garden tourism is now developing into an important part of the matrix of tourism attractions as evidenced by the hugely expanding range of specialised touring companies and groups in this sector. This applies to both domestic and the growing field of international tourism. Countries like Singapore are very actively tapping into this field through heavy investment in not only new spectacular gardens but also major international garden shows. For all these events, diverse display and meeting spaces are needed.

Biodiversity

The NAC is more than just an economic draw card. It provides a rich biological resource that contrasts with and overlaps with the nature park reserves of the Territory. It is not the same as the gazetted 'open public spaces' found within the suburbs that cater for local visitation, exercise, child's play and barbeques in some instances. It is not the same as the major garden reserves such as Commonwealth Park and Haig Park, which are much loved and used, though not aimed at biodiversity conservation and research. It is not like the major Tidbinbilla and Namadgi Parks to the south and west that epitomise the conservation of biological diversity of the Australian landscape. Rather, it provides for both educational, aesthetic, research and biological conservation values focussed on local species, national species as well as international species. The 'Hundred Forests Hundred Gardens' design theme makes forest tree biodiversity available to the public in both informal and structured settings.

The Arboretum serves biodiversity goals on many levels and ways. The Southern Tablelands Ecosystems Park Botanic Garden (STEP), at Forest 20 in the NAC, provides both an educational and highly aesthetic resource concerning the plant diversity of the Southern Tablelands in which the ACT is located. STEP has as a core objective education of the people of Canberra and the region (the southern tablelands bioregion) to the very large range of plants, trees, grasses and other herbs, and

shrubs, that are suitable for cultivation with minimum inputs of water and management. It also displays some of the plant biodiversity that the local Indigenous people used.

The '100 Forests' display tree species from Australia as well as all continents, and highlight the strong cultural links of forest trees and the cultures and countries of other places. Many of these Forests consist of species that are endangered or even extinct in the wild. By having large forests of these species, people can see and experience what these species are like, and these Forests in many instances can be the source of seeds for returning these species to the wild. Much is already being learned about many of these species as horticultural plants for the region into the future. Part of the science program of the NAC will provide data to assist both home gardeners and urban amenity managers to assess species for these purposes.

Climate Change

The NAC also plays a part in climate change actions, both in research and contributions towards carbon sequestration. The Arboretum has strong links to researchers at the Australian National University, and has a number of Forests dedicated to climate change research there. Although the calculations have not yet been done, the growing of trees, especially in their early stages, are known to take up large amounts of carbon from the atmosphere.

The design of the ANU Research site will, and to some extent already does allow the story of the role of plants in climate mitigation to be told to the half million visitors a year. As the data from these forests becomes available, that story will become part of the educational role of the NAC.

Opportunities for Blue and Green Infrastructure to benefit Nature in our City.

Functional Requirements

All of the above benefits flowing from the National Arboretum's nature-based functionality, came about because of the detailed planning and strong commitment of government, business and community. Adherence to quality in every respect started to pay dividends from the time the site was first opened to the public. The incorporation of solid energy conservation features into the construction of the Visitor's Centre and Margaret Whitlam Pavilion, are features often highlighted to visitors and they make important contributions to energy efficiency and sustainability. The Discovery Garden demonstrates what can be done to grow diverse and exciting plants in our region with its limited water supply. It was initiated by business and is now maintained by a combination of NAC staff and community groups. It continues to attract much visitation as well as community support. Although focussing on aesthetics, the National Bonsai and Penjing Collection of Australia demonstrates tree gardening for small spaces, a feature visitors to the collection comment on.

In order to adequately underpin a facility as physically large and with such diverse and active engagement with business and the community locally and further afield, the NAC requires a range of facilities not currently present. The current draft Master Plan covers some of them, but it is worth highlighting here the broad scope of infrastructure that the NAC requires to fully achieve its goals in an economically prudent manner. Broadly, there needs to be a range of basic permanent facilities, built for purpose, to replace the current temporary structures for administration and horticulture. Such facilities should also consider catering for basic research work spaces, meeting rooms for community and Friends. The original plans for the Arboretum, allocated space for a commercial 'green' hotel that fitted into the nature-based goals, but capitalised on the special environmental values of the site while not degrading them. This should be pursued as a matter of some priority. If done well, it could also become a source of funding from a successful operator. The completion of the amphitheatre facilities remains outstanding, and work to engage the private sector in the

construction should be re-activated. Education facilities need to be enhanced so that a number of school classes can be catered for, especially in inclement weather. Completion of the initial planting of all Forests is needed, as well as the initiation of the 'trial forests' to explore a range of species suitable for the local environment, especially in a climate change world. The original plans allocated space in Forest 62 (Dove Tree – *Davidia involucreata*) for an artist in residence. We are certain that all of Canberra's various arts workshops would participate in this activity. This should be pursued to build on the value of the Arboretum as a destination site for outdoor public art.

There is a strong potential for the NAC to play a role as the central site for the range of specialised horticultural and silvicultural organisations from throughout Australia as a form of 'spiritual' and actual home. By this we mean it is conceivable that professional bodies might be housed there but also see it as a site where national/international conferences and regional meetings are regularly held drawing specialised visitation to Canberra and regular business engagement. But it will require 'seed' capital to attract this type of activity.

Cost and Maintenance considerations

Cost estimates have been included in the draft Master Plan of the NAC, for a range of elements highlighted in this submission, plus others. It should be consulted for details. Other elements noted here but not in the Master Plan should be considered and then costs determined. Our submission is not intended to cover the issues in the draft Master Plan, rather to highlight more generally, the potential for, and need for, significant continuing development of this new and special site within the ACT if the huge benefits are to be realised.

Infrastructure, whether of physical constructions or organisational, need ongoing maintenance. These costs should be included in all formal proposals for Government expenditure.

There is considerable scope for enhanced support from both philanthropy and sponsorship but this will only flow if the NAC is seen to be an important institution and not part of a government department. Nevertheless core support from government is essential to signal the status of this institution.

Amenity benefits

The visitation numbers at the NAC have outstripped expectations and continue to grow. Surveys of visitors by the NAC demonstrated the high value they place in the Forests and conservation efforts.

The Arboretum adds to the capacity of the ACT to bring the benefits of open spaces with greenery, wildlife and social amenities to the community. Many studies have already shown how access to such facilities in urban areas can help relieve stress, build emotional strength, and provide safe places for nature-based recreation, aesthetic pleasure and learning. The NAC does this in a way that other natural areas of the city don't, so it expands capability in this area, rather than competing with these other areas.

Conservation and Biodiversity benefits

The Arboretum provides a home for a diversity of local flora and fauna. Canberra Ornithologists Group, plus other bird watchers, are documenting the changing avi-fauna of the site as it transitions from the scrub dominated post fire landscape, through the various stages of forest development. The ACT Frogwatch Program, run under the auspices of the Ginninderra Catchment Group via a Citizen Science project of the Friends, has documented the return of frogs to the site. It tracks the impacts of the changing landscape on one of the key indicators of fauna biodiversity.

From the beginning of the planning of the Arboretum, it was recognised that the ‘new’ forests should aim to develop understories containing a diversity of local plants, as was seen in the understories of the two old forests: cork oaks and Himalayan cedars. The ground layer plant diversity varies across the site, with both some Forests and some of the many rock outcrops being the homes of a wide range of plant species. The new land to the north of the main site, which may be added to the Arboretum, also contains areas of high native plant diversity. These patches of local biodiversity also provide habitat for a range of native animal species. While thorough surveys of animals other than birds and frogs have not yet been done, ad hoc observations indicate a wide range of species to be present. In this way, the Arboretum contributes to the corridors linking other natural areas nearby (Black Mountain, Aranda Bushland, Mt Painter, the Pinnacle and Molonglo River valley). It extends the area of habitat as well as providing a means for movements between areas.

Part of the original criteria for selecting forest species for the Arboretum included the goal of growing species that were rare or endangered in the wild, based on either the IUCN Red Book, or other local bodies such as State Environment Departments. Approximately 40% of the Forests contain species of conservation concern. Some of these are already providing viable seeds for use in research and recovery programs, and other species will come on line as they mature. This highlights an area of Green Infrastructure often overlooked in such planning. This is the provision of facilities and scientific personnel to underpin the value, development and use of these rare species. Provision of at least one qualified scientist and appropriate research facilities including seed storage should be considered as part of the core Green Infrastructure.

[Managing the Interface Between Natural Areas and Urban Areas](#)

Although the Arboretum is a new facility, it sits within the urban spaces of Canberra. It is close to Lake Burley Griffin and connected to it by a short road with complementary planting between it and the Lindsay Pryor National Arboretum.

The Molonglo River corridor to the south is only now receiving a focus of attention as the urban area of Molonglo is being developed. It will attract a range of community use and the connections between it and the NAC need to be carefully planned and integrated to maximise the amenity and biodiversity values of both.

Access from the rapidly growing suburbs to the south and west of the Arboretum also need the development of appropriate means of access. The impact on the Arboretum could be considerable. The appropriate road and parking facilities to allow visitors from those areas to approach the NAC directly rather than only accessing from the east are needed. Yet it is important to ensure that the amenity of the Arboretum as a large natural area is not disturbed by heavy traffic flows wishing to access the core or central areas or even just transiting through to other destinations. There are many models of similar circumstances in other parts of the world and they should be examined sooner rather than later so that developments within the Arboretum build toward that future access, rather than being disrupted for lack of planning.

[Policy and Regulatory Settings](#)

The NAC is to some extent ‘unusual’ among public agencies in the ACT. Most of the “National” institutions are in fact the business of the Commonwealth Government. To fully assert its “National” role, the NAC requires a range of concerted actions to establish stature and significance to this

institution. One of those considerations should be the contemplation of making it a form of statutory authority, clearly under the direction of a Minister and the Territory Government, but separate from the regular 'departmental' administration, thereby making it both appear unique and giving it the 'National' status that the National Gallery, National Museum, Australian War Memorial and National Library have. This would also 'facilitate' corporate sponsorship as has been proven this is difficult to obtain when managed by a government depart. An ACT Government model that could be used is that similar to the legislation for the Cultural Facilities Corporation Act, which establishes CMAG and the Nolan Gallery.

Recently members of FNAC, including some of our Executive, did a study tour of the urban greening, garden and arboretum management and horticultural education in Singapore. Mandated requirements protect not only trees and the percentage of tree cover, but innovations in green building design in both public and private sectors. While there are set Government laws to achieve this, there is also strong educational and research support to Singaporeans in how to go about this. And most importantly these policies are measured for success using an innovative system called the Singapore Cities Sustainability Index developed by Dr Lena Chan and colleagues in the National Parks Board of Singapore (see: <https://www.cbd.int/subnational/partners-and-initiatives/city-biodiversity-index>). The Director of that Board, a Canberra-trained forester, Mr Kenneth Er, will soon be in Canberra.

These policies are aimed at urban amenity and well-being as well as climate mitigation and are supported at the highest levels.

The ACT Government should consider developing a set of similar policies.

Conclusion

The National Arboretum Canberra has become a major feature of the natural environment in the city. It already offers many benefits of the natural environment to its surrounding urban neighbours. These take the form of health and enjoyment, education and research, economic and community engagement opportunities.

As a large and relatively new feature in the nation's capital, it presents major opportunities to enhance its capacity to engage local urban residents and visitors alike in a rich display of natural biodiversity. The appropriate development of its natural environment and engagement with both business and community, as well as diverse visitors, can only enhance the benefits of these spaces to Canberra and the nation.

With the development of the National Arboretum, the ACT Government set out on a major journey that few could see where it would lead. The foresight of those who understood the value and place of arboreta in urban spaces has been shown in the 15 years since the fires. Unlike many 'infrastructure' programs, this one set out to develop something that would grow in value through time and would become a major 'national' feature within the national capital. The concentration on high quality of design, planning and construction has already borne fruit: economically, socially, and biologically. From general visitors, to educators and their classes, to top-end researchers, they have already seen the value of this special nature-based feature of the Canberra urban space. It now remains for current generations to continue to develop this marvellous facility for the benefit of the environment, Canberrans, and visitors more widely.

Appendix

This is only a small selection from a large literature.

Human Welfare Benefits of Trees and Plants

1. Tree and forest effects on air quality and human health in the United States.

David J.Nowaka, Satoshi Hirabayashib, Allison Bodineb, Eric Greenfielda

<https://doi.org/10.1016/j.envpol.2014.05.028>Get rights and content

Highlights

First broad-scale estimate of air pollution removal by U.S. trees nationwide.

Pollution removal was substantially higher in rural areas than urban areas.

Effects on human health were substantially greater in urban areas than rural areas.

Health effects nationwide are valued in the billions of dollars per year.

Landscape and Urban Planning

2. The relationship of urban design to human health and condition

Laura E.Jackson

Volume 64, Issue 4, 15 August 2003, Pages 191-200

[https://doi.org/10.1016/S0169-2046\(02\)00230-X](https://doi.org/10.1016/S0169-2046(02)00230-X)Get rights and content

3. Healthy nature healthy people: 'contact with nature' as an upstream health promotion intervention for populations

Cecily Maller Mardie Townsend Anita Pryor Peter Brown Lawrence St Leger

Health Promotion International, Volume 21, Issue 1, 1 March 2006, Pages 45–54,<https://doi.org/10.1093/heapro/dai032>

4. Preventive medical effects of nature therapy.

Miyazaki Y , Lee J , Park BJ , Tsunetsugu Y , Matsunaga K

Nihon Eiseigaku Zasshi. Japanese Journal of Hygiene [01 Sep 2011, 66(4):651-656]

5. View through a window may influence recovery from surgery.

Ulrich RS.

Science. 1984 Apr 27;224(4647):420-1.

6. Vegetation diversity protects against childhood asthma: results from a large New Zealand birth cohort

Geoffrey H. Donovan, Demetrios Gatzliolis, Ian Longley & Jeroen Douwes

Nature Plants (2018)