Horticulture Innovation Australia

Final Report

Market Development through the National Urban Forest Alliance

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Summary

The Nursery Industry Strategic Investment Plan (SIP) 2012-2016 identified key areas where the industry could profit from a greater understanding of the benefits of the urban forest. This would drive a marketing program that focused on sales growth and research and development to focus on industry sustainability. The SIP objectives to be addressed in this project were:

Objective 1 - Increase the sales value of greenlife products and services through marketing and promotion
Objective 3 – Build industry support through shaping government, public and related industry understanding of the industry's benefits, and enhance these benefits through communication
Objective 4 - Invest in greenlife product / service development to enable the industry to respond to growth opportunities and challenges

The proposed outcome was a greater level of investment (not necessarily by industry) and greater engagement with other organisations that would benefit from the increase in urban forestry.

The aims of this project were to:

1. Support forums for regular cross industry interaction;
2. Develop strong and effective partnerships to promote the role of the urban forest;
3. Facilitate the delivery of training on tools and resources that can be utilised by stakeholders to increase the coverage of Australian urban forests; and
4. Develop targeted communications to influence key decision makers, communities and consumers on the value of plants to the "livability" of cities.

The project sought to engage like-minded parties from local government and other industry bodies – landscape, arboriculture, nursery industry – through the National Urban Forest Alliance (NUFA). A key driver of the project was the potential users for the i-Tree software to ensure that the software was used correctly and that claims made were correct. The availability of such a powerful measurement tool, to all parties who were interested in establishing a "value" for the urban forest meant that proposals could be developed that would enable plants to be valued on the same basis as built infrastructure.

The technical expertise through the NUFA partners in supporting this project was critical in providing credibility to the marketing program and it is important that these linkages are supported into the future. The development of NUFA and some of the outcomes have been recognized internationally and discussions are ongoing regarding the roll out of Global Urban Forest Alliance based on NUFA and the Partnership Plan developed.

The project has delivered on key aspects of increased awareness, capacity building through collaborative activities and an increased sharing of data. This project and the contacts were a contributing factor in the successful introduction of the nursery industry marketing project 202020 Vision.

This project commenced in March 2014 and concluded in November 2015. It did not deliver on all the stated outputs and outcomes due to the following challenges, disruptions and changes to the project resources and operating environment:

1. Horticulture Australia Limited went through aspects its transition to Horticulture Innovation Australia during some of the period of the project and resulted in the early termination of the project.
2. The Nursery and Garden Industry Australia (NGIA) project leader changed three times during the course of the project which effected the knowledge, understanding, continuity and operation of the project.
3. The NUFA partners provided their support and interaction to the project on an in-kind and generally voluntary basis which led to varying levels of commitment to activities.

If NUFA is to continue in the future it will need to obtain strong commitment from partners, identify a funding source and have a level of secretariat support to administer and facilitate activities.

The key recommendation from this project is to bring together the NUFA participants to determine if NUFA is still relevant and if any activities should continue to be progressed. There are a number of projects, program and organisations that now work in the "urban forest space" and it needs to be determined if NUFA should be a stand-alone venture or work to incorporate into the other activities.

Keywords

Urban; Forest; Alliance; Stakeholders; i-Tree; sustainable cities; capacity building; tree register; NUFA

Introduction

The Urban Forest refers to all of the trees and shrubs on all public and private land in and around urban areas (including bushland, parkland, gardens and street trees) and can be measured as a canopy cover percentage of the total area.

It is a term now widely accepted in town planning and environmental management and has become more widely known in the general community. An Urban Forest is recognised as a primary component of the urban ecosystem. Other elements of the Urban Forest include green roofs, green walls and facades.

The urban forest offers a range of benefits including:

- reducing the urban heat island effect in a time of climate change to improve livability and comfort
- improving the health of urban residents and workers though the provision of more attractive public spaces which encourages increased activity and walking
- reduced energy (air-conditioning) costs and associated emissions for buildings through transpirational cooling
- improving air quality for our atmosphere and water quality for our waterways and bays
- sequestering carbon from the atmosphere to help mitigate climate change
- increasing habitat to support biodiversity
- increasing real estate value of properties with tree lined streets
- increasing the life of infrastructure through weather protection
- improving the visual amenity of streetscapes and neighborhoods

In April 2012, the launch of the National Urban Forest Alliance (NUFA) occurred indicating a new era for Urban Tree Management in Australia. NUFA is a coalition of key not for profit associations, councils and private companies involved with management and development of the Australian Urban Forest. NUFA partners represent a vast array of stakeholders and are united to take the lead in Urban Forest management in Australia.

NUFA arose from the partnerships and collaborations arising from the development of i-TreeEco for application in Australia. Part of a software suite of Urban Forest analysis tools i-TreeEco was developed by the USA Department of Forestry. It provides an internationally accepted analysis tool and information management system covering a wide range of data including environmental benefits, canopy and land cover, storm water analysis, species selection and storm damage management.

The vision of NUFA is to promote a thriving, sustainable and diverse Australian Urban Forest that creates a contiguous and healthy ecosystem that is valued and cared for by all Australians as an essential environmental, economic, and community asset. This could be quantified utilizing the iTree software which had been “Australianised” through the incorporation of Australian specific data sets.

In September 2012, NGIA undertook a survey across the nursery industry to gain feedback on issues relating to urban forest management to assist the NUFA and NGIA in setting priorities moving forward. A total of 131 respondents completed the survey with the following results:

- 60% of respondents indicated that the education of government and regulators on the benefits of urban tree planting and the education of consumers on the benefits of urban tree planting was of most concern
- 64% of respondents indicated that NUFA should focus on educating government and regulators on the benefits of urban tree planting
- 58% of respondents indicated that NUFA should focus on educating consumers on the benefits of urban tree planting
- Examining the above results in more detail, it was reported that local government (66% of respondents), town planners (54 % of respondents) followed by State government (47% of respondents) were considered the most important stakeholder for NUFA to educate about the benefits of urban tree planting
- 72% of respondents indicated that environmental benefits of planting trees in urban environments was most important followed by ecological (50%) benefits and visual/aesthetic (49%)
- In terms of communications, article (33%), websites (32%) and workshops (30%) were identified by respondents at the key methods of communicating NUFA's objectives with stakeholders

With this in mind, it was apparent that urgent attention was required for industry to develop a reputation as a community leader in urban forest management through a better informed industry working closely with like-minded stakeholders to develop and execute target communications to key stakeholders.

The Nursery Industry Strategic Investment Plan (SIP) 2012-2016 identified industry support for these activities under Objective 3 to invest in greenlife product / service development to enable the industry to respond to growth opportunities and challenges. A key aspect of this project also entailed the establishment of effective communication and engagement with industry and the community. This is important as population is expected to dramatically increase in Australian cities over the next decade and the need to create livable spaces by planning and providing adequate green infrastructure will be required. Not only is green-life essential in addressing climate change, it is also an integral component to improving the livability, health and wellbeing of our urban centres.

In recent years, the nursery industry market channels have changed dramatically and there is a need to focus on expanding the market for plants in the urban environment. For this to happen, industry must undertake a two pronged marketing approach via the key influencers and planners who designate green space in regional planning and consumers who have the space to plant or can require that their environment is well planted. Industry data shows that while the area occupied by the urban forest is 40% public land and 60% private land, the split in plant markets is 60% landscaper managed and 40% consumer managed.

This project aimed to address Objectives 1, 3 and 4 of the Nursery and Garden Industry Strategic Plan to build industry support through shaping government, public and related industry understanding of the industry's benefits, and enhance these benefits through effective communication and engagement with industry and the community. It also sought to generate an understanding of increased investment by others with the goal of increasing the Urban Forest which would result in increased sales of plants for the industry.

Outputs from this project have included the facilitation of the National Urban Forest Alliance and State/Territory urban Forest Alliances through the development of the NUFA partnership plan, awareness activities and development and circulation of targeted communications.

Methodology

The key rationale for the project was to influence the influencers with regards to increasing the value and implementation of Urban Forests within local Government. As NGIA had invested in the iTree Technology supporting Arboriculture Australia and other interested parties this project was considered by the Nursery Industry Advisory Committee (IAC) a strategic investment.

This key activities in the project included:

1. National Urban Forest Alliance

This project provided funding for the operation of support services for NUFA which conducted meetings, delivered communication outcomes to key stakeholders and facilitated cross communication in urban forest matters. NUFA facilitated stronger linkages with like-minded stakeholders and delivered industry with a vehicle to consolidate local/regional issues that fed into a national position. Activities in the project contributed to the development of the NUFA Australian Partnership Plan 2014 – 2020 (Appendix 1) that was circulated to all Mayors of Councils throughout Australia.

2. Stakeholder training on tools including i-Tree Eco

i-Tree Eco is part of a software suite of urban forest analysis tools (referred to as i-Tree) that provides information ranging from environmental benefits, canopy and land cover, stormwater analysis, species selection and storm damage management. It is designed to use field data from complete inventories or randomly located sample plots to quantify urban forest structure, environmental effects, and environmental and monetary value to communities.

This project budgeted for Australia wide training seminars on i-Tree Eco, and provided participants with an overview of the tool, requirements for its operation, its application for Australian use, and future opportunities for its ongoing development. The workshops would target both key nursery industry representatives and key green infrastructure stakeholders including local government representatives, arborists and landscape architects/designers/contractors.

3. Urban Forest Communications

NUFA and the industry survey conducted on industry attitudes to urban forest management identified the following target audiences to target urban forest communications:

- Government (Local, State and Federal)
- Stakeholders e.g. Utilities
- Educational institutions
- Industry
- Community

4. Tree Register

A National Tree Register will hold information about Trees of Value. The Register will be open to all Local Government Authorities across Australia. Local Government representatives will be targeted via email, NUFA and existing industry communication channels. This project collaborated with Arboriculture Australia

on the Tree Register which has the ability to hold trees in several categories for identification including:

- Significant Trees (as on councils registers)
- Trees of Value (trees that are not meeting the total criteria to be significant)
- Indigenous and Torrens Straight Islander significant trees
- Public nomination (Private landowners wishing to nominate their tree)
- Heritage Trees (trees registered by the National Trust)
- Avenues of Honour (any known Avenue of Honour or single tree in honour)

Outputs

Key outputs from this project included:

- The development of NUFA Australian Partnership Plan – Appendix 1 - which was circulated to all Local Governments and targeted to tree management officers
- A governance framework to manage this project was established and two NUFA meetings were conducted – 1. 7 April 2014 (as reported in MS102); 2. 31 May 2015 – refer Appendix 2.1 Agenda and 2.2 Minutes
- The development of clear and complete national urban forest policy solutions. This occurred during the Growing the Seeds tour as part of the 202020 Vision Program. The tour was to identify proven, scalable and replicable solutions to the barriers to adoption of green space in urban areas. NGIA representatives and other NUFA member representatives attended the Growing the Seeds tour events, using their own resources, to engage with key green industry stakeholders – government, councils and researchers.
- 14 training seminars on i-Tree Eco were conducted Australia wide prior to this project commencing – with 143 attending seminars in 2012 and 74 attending in 2013. Further training was budgeted in this project but it was not conducted as there were a number of other tools and guides being developed to progress urban forests – for example How to grow an Urban Forest as an output from the 202020 Vision Growing the Seeds Tour. The i-Tree technology was discussed at the Growing the Seeds tour events.
- Targeted, relevant and factual communications developed utilizing a variety of communication channels and linked with the Industry Marketing campaign – for example the Tree Planting Guide (Appendix 3)
- The National Tree Register was launched at the Arboriculture Conference in June 2015 and is planned to be nationally communicated during the year. Refer Appendix 4 www.treeregister.org.au

Outcomes

Key outcomes from this project have included:

- An increase in stakeholder understanding of the industry, inclusion in policy development and funding support.
- Strengthened government relationships resulting in strong support for industry initiatives, programs and policy positions relating to urban forests.
- Application to Government agency responsible for Climate Change for the Urban Forest to be a key component of Carbon Farming Initiative. This utilises iTree as the key measurement tool.
- Growth in the recognition of urban forests with key stakeholders and linkages of those key Councils with the 202020 Vision
- Development of a web-based database Tree Register that combines the many registers into a single portal. This will enable stakeholders to check a single sight.
- Increased recognition and use of greenlife in urban landscapes.
- increased adoption of Urban Forest tools and processes to increase greenlife utilisation.
- Tree planting guide for use by purchasers of trees for use in the urban landscape.
- improved internal and external communication on urban forestry resulting in better decisions informed by industry knowledge and consistent messages.
- Delivery and uptake of tools and resources developed and extended to the whole of industry increasing capacity. I-Tree has been utilized in over 120 Countries and in Australia 362 organisations have used iTree as a measurement tool for the Urban Forest.

- Linkages with the International body Association of International Production Horticulture (AIPH) the drivers behind the Green City Guidelines to have Australian or Southern Hemisphere version produced. The discussions started in March 2015 and are ongoing.
- Engagement with other key organisations in USA and Great Britain for the NUFA model to be adopted internationally by those countries utilizing the iTree software.

Evaluation and Discussion

The Nursery Industry SIP identified that plant production capacity was not an issue for the industry but market development was. Since industry had facilitated the Urban Green Symposium in 2009, there was a recognition that industry had to work with like-minded bodies to get the value of the Urban Forest appreciated by key influencers at all levels of Government. The development of the NUFA Strategic plan is directly aligned to the marketing brief for 202020 Vision as they were both developed by the same team.

The Survey of Local Government areas for Tree Cover utilized iTree Technology and had support from the NUFA steering committee. NGIA had invested in the world recognized analytical tool i-Tree, in conjunction with key Councils and stakeholders Enspec and Arboriculture Australia, but penetration was slow and the uptake needed support.

The i-Tree training seminars that were run prior to this project highlighted that Councils were not only looking for support on how to use the tool but needed greater support on how to develop an Urban Forest plan and get this supported by Council. This was supported by key stakeholders in NUFA and resulted in the concept being explored during the 202020 Growing the Seeds Roadshow held in 2014 and the Masterclass program developed in 2015 with the Guide to developing an Urban Forest plan linking i-Tree to plan development. Further training was budgeted in this project but was not delivered, however the awareness of the i-Tree tool was increased over the life of this project.

The NUFA working group supported the NGIA position on the development of a National Standard for Trees in the Landscape and also the production of a Tree Planting Guide distributed to stakeholders for use with consumers and customers on critical issues re planting.

The future development of the benefits of NUFA will be dependent on the ongoing support for the iTree software platform and the recognition that all the data and linkages are reliant on sharing of successes and continuous development. There are a number of developments being proposed for the next version of i-Tree, including:

- V6.0 to be release in March/April 2016 with a proposed round of training
- Smart phone compatible
- Pests and disease assessment to be incorporated
- Demonstration of the benefits of shading for building designs
- Natural disaster risk management plan

The development of a National Tree Register means that there is a single national database of key trees in the urban and rural areas which will support councils and utilities in decision making. It does however need resources to progress its development and promote the site.

Recommendations

Since the first NUFA meeting was held in Melbourne in 2012 the Urban forest landscape has changed dramatically. The nursery industry marketing program 202020Vision has been very successful in engaging with key stakeholders and the utilisation of the i-Tree software has grown considerably in Australia. Users are more conversant with how data needs to be captured.

The key stakeholders involved in NUFA are still supporting the objectives as detailed in the Partnership Plan document that was progressed to completion under this project, but are still aligned to their overall corporate objectives eg City of Melbourne Urban Forest Plan.

As an industry contributing into the achievement of these plans the nursery sector, landscape sector and arboriculture sector must have a unified approach and assist with standardized systems. This is important to improve efficiencies and also enable the development of a common language and resources for the future.

This project was a facilitation project that has resulted in a number benefits but did not achieve all anticipated outputs and outcomes.

The key recommendation from this project is to bring together the NUFA participants to determine if NUFA is still relevant and if any activities should continue to be progressed. There are a number of projects, program and organisations that now work in the “urban forest space” and it needs to be determined if NUFA should be a stand-alone venture or work to incorporate into the other activities.

Scientific Refereed Publications

None to report.

Intellectual Property/Commercialisation

No Commercial IP generated as program built on free I Tree software developed by USA Department of Agriculture and Forestry.

Acknowledgements

The input from key stakeholders in the formation of NUFA need to be acknowledged as good ideas only come to fruition by people supporting them.

Appendices

1. National Urban Forestry Alliance – Australian Partnership Plan 2014 - 2020
2. 2.1 Agenda and 2.2 Minutes – NUFA meeting 31 May 2015
3. NUFA Tree Planting Guide
4. National Tree Register – website skin.

National Urban Forest Alliance
Australian Partnership Plan 2014–2020

July 2014

National Urban Forest Alliance
nufa.com.au

National Urban Forest Alliance
nufa.com.au

For further information visit www.nufa.com.au

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Foreword

Urban forests are considered critical components of the urban built environment, contributing an array of social, health and wellbeing, economic and environmental benefits to communities.

The National Urban Forest Alliance (NUFA) brings together a collaborative, open and diverse cross-disciplinary group of partners to promote the role of the urban forest[1] throughout Australian towns and cities. NUFA is not-for-profit and apolitical. NUFA partners, freely offer resources and information to enable impartial discussion of ideas, open transfer of knowledge and implementation of actions that are independent of organisational hierarchy or commercial interest.

In recent years the research pool related to urban forests has grown and more tools have been developed to show the benefits of urban forests. It has become increasingly obvious that urban forests must be incorporated into the planning, design, construction and management of Australian towns and cities.

Healthy, resilient and liveable towns and cities that can sustain growing populations in 21st century Australia will feature viable and vibrant urban forests.

1 Urban forest includes all forms of vegetation found in an urban environment.

The *National Urban Forest Alliance Australian Partnership Plan 2014–2020* provides a clear vision for urban forestry in Australian towns and cities. NUFA partners have developed this plan based on their extensive scientific and practical research, alongside their observations and trials of urban forest planning, design, construction and management in Australian towns and cities.

This document demonstrates a commitment to enhancing Australian built environments and provides case studies of activities that are already underway and reflect NUFA goals. We highly recommend the *National Urban Forest Alliance Australian Partnership Plan 2014–2020* for your reading.

We also would welcome any new partners who can help deliver this plan for the betterment of our urban environment and to help ensure future generations can also experience the lifestyle we now enjoy.

Craig Hallam
Arboriculture Australia Ltd
NUFA Chair

Arboriculture Australia™

Anthony Kachenko
Nursery & Garden Industry Australia
NUFA Deputy-Chair

Nursery & Garden Industry Australia

WHAT IS AN URBAN FOREST?

Australia's urban forest includes all plants on public and private land in and around urban and peri-urban areas. The urban forest includes plants in bushland, parklands and gardens and along streets. The urban forest also includes vegetation growing on rooftops, walls and facades. The urban forest can even extend indoors, in shopping centres and apartment block courtyards and patios.

Urban forestry is now a widely accepted term in Australian town planning and environmental management and is understood by the community as a tool for achieving positive environmental outcomes. Urban forests are recognised as a primary component of urban ecosystems.

AUSTRALIA'S URBAN FOREST

Across Australia, the vegetation in parks, gardens and open spaces and on built infrastructure is quietly filtering pollution from the air we breathe, sequestering carbon, absorbing nutrient loads from stormwater and providing shade on our hot summer days. The vegetation within our urban environments gives residents and visitors genuine pleasure and a sense of wellbeing as they observe and interact with nature. Urban forests encourage exercise and outdoor recreation, essential building blocks for long and healthy lives.

To ensure the longterm resilience of Australia's towns and cities, the contribution of urban forests must be recognised.

Urban forests mean different things to different people, yet they contribute positively to the way we see our towns and cities and how we use them. We see the stunning row of ageing elms along Royal Parade in Melbourne, showcasing the city's rich heritage, whilst the figs in Sydney's Hyde Park provide welcome respite for city workers in summer. The new trees to be planted along the Townsville foreshore will replace those lost in Cyclone Yasi and provide the community with a fresh start. Lemon scented gums welcome

visitors to Kings Park in Perth, Adelaide's spacious parklands circle the city centre, Hobart displays perfect examples of exotics and native species, Darwin's streetscapes have matured since Cyclone Tracy, and the poincianas in Brisbane tell us when summer is on its way.

Trees are the largest elements in the urban forest. They are such an important and critical part of our urban fabric and support the basic elements that sustain life: the air we breathe, the water we drink and shelter from the wind in winter and sun in summer. All components of the urban forest allow those living in our towns and cities to connect to the natural landscape. The urban forest can thrive alongside the hard infrastructure associated with urbanisation.

Most Australians live in urban areas, a pertinent fact when addressing the resilience and health of our towns and cities for the future. The challenges facing our towns and cities include urbanisation, densification, population growth, resource management, changing climates and human health. These challenges demand multidisciplinary solutions. Urban forests can contribute to the solutions, offering a myriad of social, environment and economic benefits within the built environment. In their capacity as pieces of key civic infrastructure, elements of the urban forest deliver ecosystem services that our cities and towns need to face the future. These living, breathing, adaptable landscapes provide suitable habitat for people, plants and animals.

Urban forests, however, are yet to claim priority as the most important asset in town planning and developments. Generally the urban forest is expected to 'grow up' almost spontaneously once town planning and urban design is complete and construction has begun. NUFA aims to change this practice and see planning for the urban forest finding a central place in the town planning and design process.

The next challenge is to have plans in place to guarantee the care and maintenance of the urban forest in the face of climate change, increasing urbanisation and the densification of our towns and cities. We know that local government authorities across Australia are well advanced with their forward thinking master plans and strategies. In fact, some are world leaders, increasingly making the strong link between the urban forests and their environmental and social benefits, and planning accordingly.

There is a clear opportunity now to ensure the urban forest Australia-wide is being funded, managed and enhanced to build urban resilience and maximise the positive impacts on human health and wellbeing.

WHO WE ARE

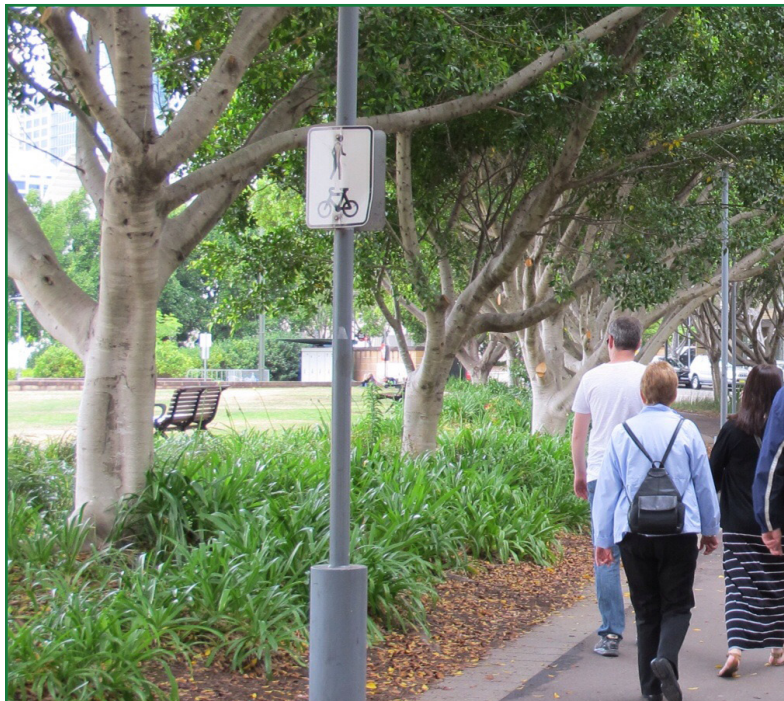
The National Urban Forest Alliance (NUFA) is a collaborative cross-disciplinary coalition of not-for-profit associations, councils, research bodies and industry organisations involved with the future planning, construction, design and maintenance of the Australian urban forest.

NUFA formed after several industry groups found a common alliance in 2011 to promote the value of urban forests. This collaboration created an opportunity for further advocacy and research work. Alliance partners represent a vast array of stakeholders and are united to take the lead in urban forestry issues in Australia.

NUFA is always seeking to actively engage with new partners and sponsors. We encourage other entities to engage in the priorities we stand for in order to achieve greater urban forestry results across our nation.

Current NUFA partners include:

- Arboriculture Australia Ltd
- Nursery & Garden Industry Australia
- Landscaping Australia
- Landcare Australia
- Australian Institute of Landscape Architects
- The National Trust of Australia
- Melbourne Urban Forest Accord Group
- Parks & Leisure Australia
- Environs Australia
- City of Melbourne (Victoria)
- City of Port Phillip (Victoria)
- Moonee Valley City Council (Victoria)
- City of Sydney (New South Wales)
- Brisbane City Council (Queensland)
- Campbelltown City Council (South Australia)
- Parramatta City Council (New South Wales)
- City of Darwin (Northern Territory)
- Launceston City Council (Tasmania)
- Banyule City Council (Victoria)
- City of Hume (Victoria)
- City of Casey (Victoria)
- ENSPEC Pty Ltd



WHAT NUFA STANDS FOR

Our vision is to promote a thriving, sustainable and diverse Australian urban forest to support healthy ecosystems that are valued and cared for by all Australians as an essential environmental, economic and community asset, now and for future generations.

Our work is based around three areas of opportunity—policy, information sharing and resources.

POLICY

- Developing a strategic direction for urban forestry policy in Australia.
- Proposing changes to existing policy and operational procedures affecting urban forestry.
- Developing and supporting more localised urban forest research across Australia.

INFORMATION SHARING

- Promoting the benefits of Australia's urban forests.
- Providing advice on urban forestry issues.
- Expanding the network of urban forest stakeholders.
- Exchanging information between representative groups and the wider community about the role and management of urban forests.

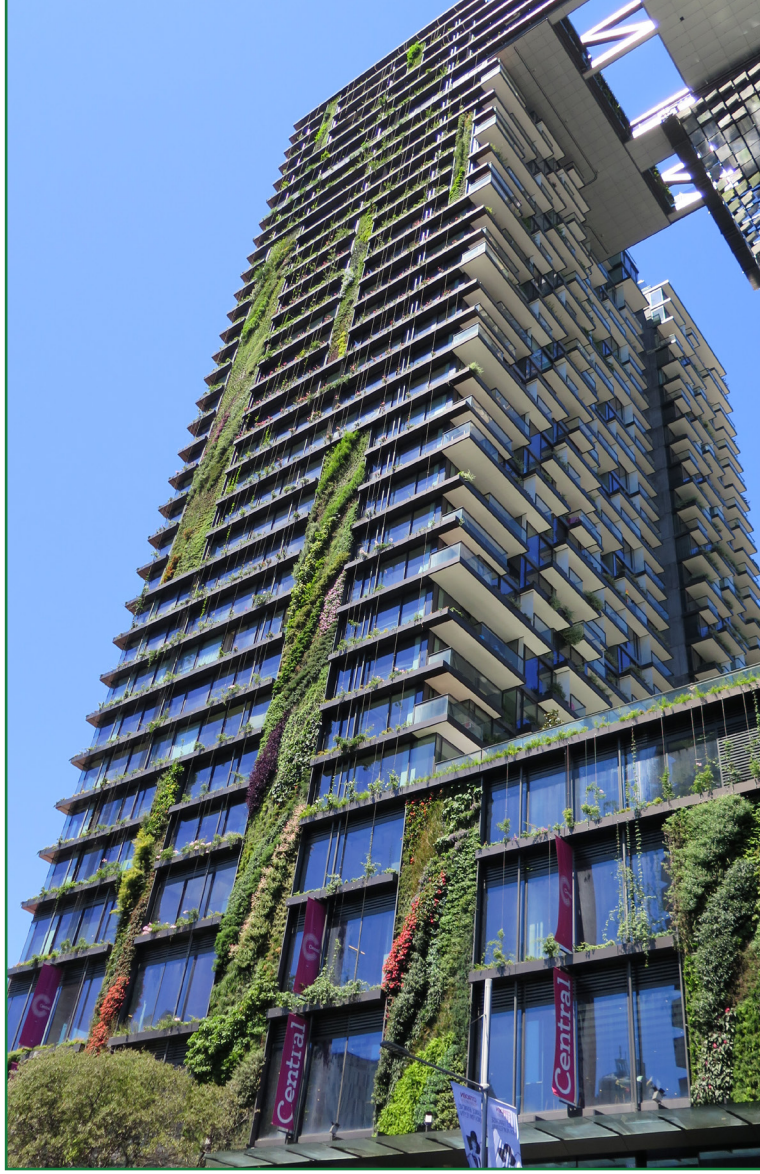
RESOURCES

- Monitoring the ongoing performance issues of urban forestry.
- Developing a set of tools that managers can readily access to measure and improve the performance of the urban forest.
- Providing training and capacity building opportunities for current and future urban forestry practitioners.
- Developing a set of urban forestry best practice guides and case studies for urban and town planners.

The value of urban forests

Urban forests provide critical community infrastructure, alongside built infrastructure such as roads, paths and buildings. We value urban forests for:

- providing shade that reduces the urban heat island effect and improves liveability and comfort
- reducing energy costs by shading buildings in summer and protecting them from cold winds in winter, reducing the need for heating and cooling
- reducing the wind chill factor in winter and reducing the severity and frequency of frosts
- improving air quality in the atmosphere
- improving water quality in waterways and bays
- sequestering carbon from the atmosphere to help mitigate climate change
- improving the health and wellbeing of communities through increased recreation and relaxation
- providing meeting places for social and community interaction
- increasing habitat to support ecological balance and biodiversity
- increasing the real estate value of homes and commercial properties through improved amenity
- enhancing the local economy
- providing weather protection and increasing the life of built infrastructure (e.g. roads, footpaths, buildings)
- improving the visual amenity of streetscapes and neighbourhoods.



CASE STUDY

CITY OF PARRAMATTA, NSW

Development Control Plan (DCP)

In 2011, the City of Parramatta implemented the *Parramatta Development Control Plan*. This has been the single most valuable tool for council in their efforts to enhance canopy cover in the private realm. The DCP uniquely requires new developments to have a proportion of deep soil zones within the development to encourage the planting of larger trees.

Deep soil zones have three important benefits: encouraging the planting of larger-canopied trees, protecting existing mature trees and allowing infiltration of rain into the watertable and reducing the amount of stormwater runoff. It is therefore important to retain, protect and create deep soil zones across neighbourhoods. Rules of thumb under the *NSW Design Code* state that a minimum of 25% of the open space of an area should be deep soil zones and that neighbouring properties are encouraged to have contiguous deep soil zones to allow for larger deep soil zones and more extensive vegetation plantings across neighbourhoods.

Coupled with the council's existing *Parramatta Street Tree Plan* developed in 2012, council aims to significantly improve and increase the number, health and longevity of Parramatta's street trees and private-realm, new development trees. The plan is extensive, covering off tree species criteria, planting guidelines and the tree removal process. There is also a clear implementation plan detailing how this will determine on-ground works and priorities into the future.

URBAN FOREST ISSUES IN AUSTRALIA

There is much we don't know about our urban forest in Australia. Limited local data exists describing the composition, coverage and connectivity of our urban forests, their precise influence over microclimatic urban canyons, their exact role in supporting human health and wellbeing and their overall function and the desired distribution in resilient communities of the future. Internationally, research has bridged most of these gaps, however, more localised studies are required for evidenced-based policy and planning in Australia.

Plants are the last asset to be implemented in a development site or street upgrade. Unfortunately, when funding runs short, the last asset funding is reduced. Additionally, negative attention is focussed on the urban forest on the rare occasions when humans are injured by one of its components. When such events occur they become news headlines because of their rarity, creating a perception in the community that urban forests pose more risks than they actually do.

The urban forest is rarely celebrated as an essential community asset or championed for the benefits they provide to the community.

The way our urban forests are currently funded, planned and managed differs depending on the land custodian. This becomes obvious when adverse conditions prevail, such as droughts, cyclones or floods. There is no mandate for the overall protection and enhancement of our urban forests when faced with challenges such as water restrictions, heat waves and a changing climate.

State governments generally have jurisdictional power to override local council decisions relating to urban forests, particularly with regard to developments and the provision of essential services. Historically, the federal government has had little influence on the planning and management of urban forests, except those on Crown land.

Urban forest coverage in the private realm is hugely diverse, depending on the history of specific suburbs and the disposition of private land owners. There are currently few regulations or standards from which urban managers or private landholders can work and a paucity of localised research to substantiate any proposed guidelines.

NUFA therefore sees four key urban forest issues that require attention across Australia: knowledge, guidance, communication and action.

We need more urban forestry knowledge

- Strengthen Australia's evidence base and understanding through localised research relating to the environmental, economic and community benefits of the urban forest.
- Integrate Australian urban forest research and information through a centralised database.
- Strengthen our understanding of the local, state and federal drivers required for greater provision of urban forests.
- Champion a universal tool or model that is able to measure the true economic value of healthy vegetation across a range of factors such as biodiversity, human health and community benefits.
- Proactively provide education and public awareness of the benefits of urban forests, based on a triple bottom line approach.

We need to provide more guidance about urban forestry

- Support local governments to incorporate urban forestry values into their strategic planning.
- Support state governments to better incorporate urban forestry values in all development planning.
- Provide access to urban forestry management tools, training programs and case studies.
- Record and demonstrate best management practice to support remnant and indigenous vegetation within a broader mixed urban forest.
- Support the sharing and adoption of Australian guidelines for urban forest management.

We need to improve and expand our communication about urban forests

- Create a unified vision and a set of achievable goals for Australia's urban forest.
- Greater recognition of the urban forest as a necessary environmental, economic and community asset and an integral component of urban infrastructure in towns, cities and new developments.
- Advocate the positive impacts that urban forests have on other disciplines: engineering, urban design, water management, community health and education and community engagement.

We need more on the ground action to promote urban forestry

- More planning and integration of urban forestry in housing, commercial and industrial developments, council master plans and state government growth area plans.
- Smarter designs, plans and implementation of urban forest plantings.
- More projects across the country planting and enhancing Australia's urban forest.

CASE STUDY

CITY OF DARWIN, NT

CBD Master Plan

The City of Darwin is currently developing a *CBD Master Plan*, which includes a background study on the state and distribution of the CBD's street and park trees. Work is currently being undertaken to determine the best method for managing these trees into the future, however, the *CBD Master Plan* raises the important contribution urban trees make to Darwin's liveability. Public consultation workshops held as a precursor to the development of the master plan demonstrated the public's desire for green spaces and street trees to provide shade, amenity and walkability in the city.

The City of Darwin understands the effects of the urban heat island, which, when coupled with the city's tropical weather, can create uncomfortable and uninviting urban spaces. The *CBD Master Plan* will determine how Darwin will be designed for the future, ensuring that the city is a great place to live, work and visit. Urban trees will be a key component of the solution.

OUR GOALS

Through in-kind and some financial support, NUFA proposes to leverage its partners to enable all willing stakeholders to contribute to the broader Australian vision for urban forestry. In building partnerships and collaborations, we aim to affect change in planning, policy and implementation at all governmental levels, with developers and also in the private realm.

Our key goals are to:

INFORM

- Develop a set of key messages and resources to proactively promote urban forestry and raise awareness of NUFA's role nationally.
- Demonstrate the qualitative and quantitative value attributed to urban forests through evidence-based research.

ENGAGE

- Educate key stakeholders to appreciate the importance of planning for and enhancing our urban forests.
- Cultivate partnerships between stakeholders in support of investment in urban forests.
- Support the development of regional (state and territory) and local alliances.

ENCOURAGE

- Develop initiatives, projects and research that support the growth and management of our urban forests.
- Promote career opportunities in urban forestry and offer training programs on key urban forestry issues
- Develop case studies outlining learnings and best practice to assist and encourage others with urban forestry initiatives.

ENABLE

- Encourage and enable the partners to provide advice and support and to share information with other urban managers.
- Develop guidelines and standards surrounding a range of activities relating to the growth and development of the urban forest in all areas of Australia.
- Establish standards and best management practice for managing urban forests.

WHAT STEPS WILL WE TAKE?

In order to achieve our overarching goals and vision for the Australian urban forests, NUFA has set an ambitious agenda for collaboration, research and advocacy. We recognise the urgent need to add weight to urban forestry planning if we are to change the way Australians think about and design their towns and cities for the future. Ecosystem change is gradual and in order to build resilience at local levels, holistic and efficient planning requires continual improvement.

As the old proverb states: "The best time to plant a tree was 20 years ago; the next best time is now." Equally, "The tree we nurture today is the tree that provides the air we breathe tomorrow."

Certain actions have been identified as key steps towards achieving our goals and these have been allocated timeframes for completion. The list is not exhaustive and can be modified as needed to keep in line with new research, policy directions and funding arrangements. NUFA will attempt to achieve its vision by 2020 through the completion of the following actions.

Phase 1 to be completed by 2015

- Invite key stakeholders from across Australia to take part in the development of a detailed Australian urban forestry issues paper.
- Advocate the use of i-Tree Eco, an urban forest valuation tool, with all stakeholders and provide training opportunities.
- Develop a set of urban forestry case studies for the NUFA website and for distribution.
- Prepare a central database of key Australian urban forestry research with contributions from all relevant institutions.
- Build alliances with other urban forestry groups in Australia and overseas.
- Finalise the National Trees Register.
- Raise awareness of NUFA goals with stakeholders.

Phase 2 to be completed by 2018

- Collaborate to seek funding grants targeting key urban forestry research to fill the current knowledge gaps.
- Implement a NUFA awareness campaign targeting key stakeholders through presentations and workshops.
- Develop a relationship with the Green City Campaign in Europe to help develop publication similar to *The Green Guidelines: techniques for a health and liveable city*.
- Write an urban forestry best management practices guide for Australia.

Phase 3 to be completed by 2020

- Evaluate NUFA programs, funding and goals.
- Review the continuous improvement of the Australian urban forest from 2000 to 2020.
- Set a visionary plan to 2060.

CASE STUDY

BRISBANE CITY COUNCIL, Qld

Valuing the urban forest

Brisbane City Council has pioneered the use of *i-Tree Eco Version 5* to quantify some of the environmental values of their estimated 575 thousand street trees. Using data collected from a sample survey of over 16,000 trees, environmental values for each surveyed tree were calculated and used in an extrapolation across the broader Brisbane street tree population.

The study found that Brisbane's trees were most valuable for intercepting rainfall, which is of particular importance in summer when the city is inundated for short periods with heavy rain. Brisbane's tree canopies intercept these heavy downpours, slowing the rate of stormwater flows into receiving waterways and allowing groundwater recharge. This rainfall interception has been valued by *i-Tree Eco* at over AUD1.4m per year. Further to this, Brisbane's street trees sequester 7300 tonnes of carbon annually to the value of AUD168,300 per year (assuming carbon is priced at AUD23 per tonne).

With a combined environmental value of AUD1.657m, Brisbane's street trees prove that they are a valuable council asset that is worth protecting, managing and enhancing. When combined with other data routinely gathered from street tree sample surveys, *i-Tree Eco* helps draw attention to the multiple values of the city's urban forest.

Water Sensitive Urban Design (WSUD) Guidelines

Along with these findings, the Brisbane City Council has begun to integrate street tree planting with stormwater management. A suite of WSUD tree planting designs have been included in the *WSUD Streetscape Design Guidelines* and a collaboration between council's *WaterSmart Strategy* and its *Neighbourhood Shadeways* program, identified 2878 potential street tree planting and stormwater infiltration retro-fit sites. Using the *MUSIC V4* water model, these sites, if planted and retro-fitted have the capacity to reduce overall stormwater flow rates by 5.3%, suspended solids by 84%, phosphorus by 70–72% and nitrogen by up to 43%, which would make a huge positive impact on Brisbane's receiving waters such as the Brisbane River and Moreton Bay. The value of these impacts easily covers the costs of WSUD street tree installations and retro-fits.

Along with the WSUD guidelines, council has set some visionary targets for its urban forest to:

- achieve 40% native forest cover
- increase tree shade cover to the city's bikeways and footpaths
- transform major entry roads to the city into subtropical boulevards.

Council has achieved its goal to plant two million trees by 2012, despite the floods in 2011 and the associated damage to Brisbane's tree population.

OUR FUNDING

NUFA will rely on in-kind contributions from its partners and will, from time to time, seek project funding from government, industry groups and private enterprise. Funds will be invested in research that addresses key urban forestry needs, in developing measurement and performance tools for urban managers to use in their daily work and to structure an educative campaign to raise awareness of Australia's urban forests.

We propose to align closely with key research institutions and other stakeholders to ensure the research gaps identified are continuously addressed.

NUFA also understands that many projects are already underway, initiated and led by individuals, private enterprise, local councils and communities. NUFA proposes to link these projects to build an evidence base, leverage existing funding and empower others to embed urban forestry principles into their planning and on-ground operations.

CASE STUDY

CAMPBELLTOWN CITY COUNCIL, SA

Planting more trees on public vacant land

Campbelltown City Council is facing some very tough challenges for their tree planting program due to increasing urban developments that leave barely enough growing space for trees in nature strips, let alone on private land. The expanding driveway crossover widths are proving popular in these redevelopments, meaning that space left for tree planting is limited at best.

The Manager of Urban Trees is making the most of decreased opportunities by ensuring that any available public space, such as parks or vacant lots, have more council-planted trees to offset the loss to the housing infill and developments. By using the remaining available space, council has set a priority for planting larger canopied trees where possible to provide greater overall environmental benefits, such as shading, air pollution amelioration and stormwater interception, for urban areas.

Increased understory plantings

As part of the *South Australian Urban Forests Million Trees Program*, council has put effort into promotion of the benefits of understory plantings in remnant vegetation and park sites. They have planted over 5000 understory plants annually since 2002 to improve biodiversity, create habitat and species diversity, and to improve the overall urban ecology of Campbelltown. This initiative will continue into the future, as long as space is available. An example is the iconic River Torrens linear park.

Veteran Tree Law project

Council has recognised the importance of its remnant trees, which include red gum (*Eucalyptus camaldulensis*) and blue gum (*Eucalyptus leucoxylon*) species. These 'veteran trees' are a significant part of Campbelltown's cultural and ecological heritage, treasured by many generations of residents. They were revered in the past because of their economic and social value, and as key elements of the amenity landscape. More recently, their considerable ecological importance has been recognised. The project will provide consistency in management of veteran trees and habitat features, and maintain a low risk, aesthetic and sustainable landscape. It will inform council staff and contractors of tree management options and opportunities applicable to veteran trees and habitat features. The veteran tree population is a diminishing asset that can take hundreds of years to develop. Through canopy and root zone management many of these trees, which may have previously declined and potentially been removed, can now be 'maintained and retained'.

WHAT HAVE WE ALREADY ACHIEVED?

i-Tree Eco

NUFA has been involved in the introduction of i-Tree Eco, an urban forest valuation tool built by the Forestry Service in the United States, which has been re-calibrated for use in Australia. The tool allows Australians to measure the value of certain environmental benefits of vegetation, including air pollution amelioration, carbon storage and sequestration, energy saving benefits and amenity values.

It is a powerful tool when used in broader awareness campaigns and to discuss the benefits in dollar terms. Using i-Tree Eco, vegetation can easily be included in cost benefit analyses of streetscape works, residential developments and whole of municipal strategic plans.

i-Tree Eco evaluations have been carried out across Australia using stratified sampling within urban forests. Alone, these samples demonstrate the powerful impact that urban forests have on urban environments and, when extrapolated across entire tree populations using certain assumptions, we are able to gain an insight into just how valuable our urban forests are.

NUFA has promoted the tool across Australia when speaking at various conferences and hosting national workshops with key stakeholder groups.

The following case studies were undertaken in 2011–12. *Note: the carbon value was calculated at AUD23.00 per tonne.*

City of Casey, Victoria

Sample size: 23,480 park trees representing approximately 20% of the council's park tree population

Total carbon storage: 4198 tonnes valued at AUD96,584

Carbon dioxide sequestered annually: 206 tonnes valued at AUD4754

Air pollution removal: 1.5 tonnes annually valued at AUD984 per year

Rainfall interception: 4089 m^3 valued at AUD9279

Amenity value: AUD51,743,653

City of Darwin, Northern Territory

Sample size: 1100 street trees covering Darwin's CBD

Total carbon storage: 285 tonnes worth AUD6554

Carbon dioxide sequestered annually: 19 tonnes valued at AUD440

Air pollution removal: 0.16 tonnes annually valued at AUD105 per year

Energy saving benefit: 25,920 KWh annually valued at AUD3330 per year

Rainfall interception: 4319 m^3 valued at AUD9812

Amenity value: AUD2,760,698

City of Moreland, Victoria

Sample size: Estimated 60,000 street trees, stratified random sample over 6 plots of 12,207 trees, extrapolated across entire tree population

Total carbon storage: 9560 tonnes valued at AUD218,296

Carbon dioxide sequestered annually: 796 tonnes valued at AUD18,368

Air pollution removal: 3 tonnes annually valued at AUD18,000 per year

Energy saving benefit: 78,511 KWh annually valued at AUD18,771 per year

Rainfall interception: 43,264 m^3 valued at AUD98,274

Amenity value: AUD112,814,642

Brisbane City Council, Queensland

Sample size: 575,000 street trees with 2000 hectares of canopy coverage, stratified random sample over 80 plots of 16,600 trees, extrapolated across entire tree population

Carbon dioxide sequestered annually: 7300 tonnes valued at AUD168,000

Air pollution removal: 87,200 tonnes annually valued at AUD44,200 per year

Rainfall interception: 653,733 m^3 valued at AUD1,444,533

National Tree Register

NUFA has funded the development of an Australia-wide tree register. The purpose of the register is to provide information about trees of value around Australia that the general public can access using their smart phone technology.

The register is also to be used as an educational tool and a checkpoint for utility companies to ensure works will not affect a tree of value. The trees will be spatially mapped and tree managers can update the data to reflect current tree assessments. Various councils will contribute their tree database for inclusion.

Nominations from the public for a tree to be included on the register will be accepted through the website.

Urban trees included in the Carbon Farming Initiative

To ensure that urban trees are on the national agenda, NUFA is working with the federal government to include the i-Tree Eco methodology for the valuation of carbon storage and sequestration of urban trees under the Carbon Farming Initiative. Discussions are ongoing with the Australian Federal Government.

CASE STUDY

CITY OF MELBOURNE, Vic

Urban forest strategy

The City of Melbourne manages over 70,000 public trees with an estimated amenity value of $730 million. Melbourne has been traditionally regarded as Australia's 'garden city' for its parks, gardens and treed boulevards. However, the period of extended drought from 1998 to 2010, combined with water restrictions, placed enormous pressure on the tree population and caused widespread decline in tree health. The 2009 heatwave and associated human fatalities also highlighted the city's vulnerability to extreme heat. Population growth, forecast climate change and the urban heat island's amplification of urban temperatures all indicated that reducing the city's vulnerability to heat would be a key challenge for Melbourne.

In 2011, the City of Melbourne began to strategically address these combined challenges through the development of its Urban Forest Strategy. Through a series of engagement sessions, the challenges and issues surrounding Melbourne's urban forest were conveyed initially through internal consultations with council staff and councillors, and subsequently taken to the public. An infographic and the Urban Forest Visual (melbourneurbanforestvisual.com.au) were used with great effect to communicate complex urban forest data and key challenges to stakeholders. The issues were keenly understood across all stakeholders, as it became apparent that Melburnians were passionate about the tree population and improving the city's resilience to climate change.

The urban forest strategy sets out targets to double the city's canopy cover, improve the health and resilience of the tree population, and to build community ownership of the urban forest. It is intended that meeting these targets will mitigate the urban heat island effect and contribute to the health and wellbeing of Melburnians.

Council's precinct plans

Given the momentum of the urban forest concept at both community and council levels, once the strategy had met its required levels of approval for formal adoption, council was able to transition quickly into developing a set of 'precinct plans'. Plans for each of the 10 precincts will dictate tree planting schedules, species selection and opportunities for new tree plantings to ensure the primary objectives such as canopy cover, tree health, water availability and improved biodiversity will be met over the next two decades. Given the level of community interest in the urban forest and the localised change associated with doubling tree canopy by 2040, it was considered essential that the precinct plans be developed collaboratively with the community to reflect the priorities and character of each precinct. Collaborative consultation techniques such as 'participatory mapping' and 'deep democracy' are being used to ensure that the community's values are reflected in the precinct plans.

When observed through a ground based thermal imaging camera on a hot day, large trees (top) have a greater cooling effect on a suburban street than smaller trees (bottom).

CASE STUDY

CITY OF SYDNEY, NSW

Urban forestry strategy

The City of Sydney is implementing an *Urban Forest Strategy* and a suite of tree management policies in managing street, park and private trees in a complex and highly evolving urban environment.

The *Urban Forest Strategy's* fundamental objective is to maximise the economic, social and environmental benefits the urban forest provides, and ensure these benefits are distributed equitably across the city. This assists the city to strategically assess, and direct resources, to areas that most need canopy cover protected or new trees planted. This ensures that all sectors of the community can enjoy the benefits of an urban forest.

Four strategic directions are outlined in the strategy, and their delivery is further supported by complementary tree management policies and plans. These directions include:

1. Protect and maintain the existing urban forest—supported through the city's *Local Environmental Plan* and *Development Control Plans*, and best practise proactive street and park maintenance programs.
2. Increase canopy coverage by 50% by 2030 and 75% by 2050—supported through the city's *Local Environmental Plan* and *Development Control Plans*, which require new developments to achieve 20% canopy cover and street tree planting (in roadways), and also through the city's *Neighbourwoods* program that includes AUD10,000 matching grants and free trees.
3. Improve forest diversity—supported through the city's *Park Tree Management Plans* and contractors to increase tree age classes, and the city's *Street Tree Master Plan*, which limits the percentages of species (40% families, 30% genus and 10% species).
4. Increase community knowledge and engagement—supported through the city's *Tree Donation Policy*, *Register of Significant Trees* and other tree planting projects.

Neighbourwoods—Grants for private property plantings

The city has a 'matching grants' program that supports neighbourhood groups in the city to buy materials or supplies for projects that bring the community together. The city will match the contribution a group makes (including their time) with up to AUD10,000 provided to buy tools and materials required to make the project happen.

The *Neighbourwoods* project was developed to assist private property owners' to plant canopy trees on their properties. Almost 62% of the city's local government area (LGA) is in private ownership, however it is the lowest performing area in terms of canopy cover by land use.

This project demonstrates that the City of Sydney is willing to 'put its money where its mouth is' and assist the community to green their properties, and the LGA overall. The city recognises that this community support, developing into a partnership, will be very important in meeting the canopy cover targets.

HOW WILL WE KNOW IF WE HAVE SUCCEEDED?

NUFA will evaluate its successes against a series of visionary benchmarks to be achieved by 2020.

- NUFA partners come from many sectors including the public, private, utility, education and community sectors.
- Decision makers and urban planners value urban forests as a necessary environmental, economic and community asset.
- There has been a marked increase in investment in urban forestry, with a shared vision to maintain and grow the Australian urban forest.
- A dedicated collection of resources and knowledge has been sourced from a variety of organisations, promoting healthier, more vibrant and liveable communities.
- There has been a revolution in Australia's understanding of urban forestry and programs have been adjusted to reflect new thinking and opportunities.
- The urban forest canopy cover in our cities and towns has increased over time.

Australia's urban forests make a unique contribution to our towns and cities. Now is the time to take a closer look at why they're so valuable, how we can better manage them and what we'd like our future urban forests to look like.

If you would like to join NUFA and help secure a vibrant and resilient future for Australia's towns and cities visit www.nufa.com.au for more information.


Rabobank

National Urban Forest Alliance

nufa.com.au

National Urban Forest Alliance (NUFA) Meeting

Meeting Date: **Sunday 31st May 2015**

Meeting Time: **1.00pm**

Meeting Location: **Adelaide Convention Centre North Terrace ADELAIDE SA 5000**

Meeting Room: **Riverbank Room 8A**

Agenda items:

1. Welcome and Introduction

2. Update
    a. i-tree – Craig Hallam
    b. NCOS – Craig Hallam
    c. National Tree Register (live demonstration) - Craig Hinton
    d. 202020 - Robert Prince

3. Chair – It is time for a change

4. NUFA locally. Many existing tasks not completed by key stakeholders. How do we re engage these stakeholders to complete outstanding tasks?

5. NUFA website – we need to move forward with this and populate the website with information.

6. Current needs: Update our goals and ensure that new trends are being met.

7. General Discussion on matters arising from the floor

8. International Working Group. NUFA, TDAG model to go international with the assistance of the Arborday Foundation.
    a. TDAG introduction – Jeremy Barrell
    b. Arborday Foundation – Dan Lambe
    c. Objective
    d. Structure
    e. Future
    f. First International Convention

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Meeting Time: **1.00pm**

Meeting Location: **Adelaide Convention Centre North Terrace ADELAIDE SA 5000**

Meeting Room: **Riverbank Room 8A**

Attendees

Keith Foster – Brisbane CC
Matt Palmer – Energex
David Tipping – Melbourne CC
Heath – Ergon
Craig Hallam – Enspec
Craig Hinton - Enspec
Robert Prince – NGIA
International Guests:
Philip van Wassenaer - Canada
Jeremy Barrell – UK
Dan Lambe – USA
Pedro Castro– Brazil
Mark Duntemann- Chicago, USA
Jago Keen - UK

Agenda items and *Minutes*

1. Welcome and Introduction
   Craig welcomed attendees and noted that the timing of the meeting was a reason why numbers were down as many of the Council members were not arriving in Adelaide until Monday. Could not be avoided due to Conference program.

   Craig provided a briefing on how NUFA had becomes established and what had been achieved as per the Strategy Document. Need for other parties to get involved as most of the effort had been done by Enspec and NGIA. Not good enough for the future.

   Craig provided a briefing on meetings with Federal Government re the Carbon Farming Initiative and the use of iTree to support our case. This will mean Councils can have Urban Plantings quantified for offset and Carbon Storage.

   Craig Introduced the National Tree Register which Craig Hinton had been working on and a presentation would follow.

2. Updates provided
   a. i-tree – *Craig Hallam updated the meeting that the most users of I Tree outside of the USA were in Australia, and the least questions on how to use the software*

were from Australia. This showed that the training we had provided had benefits. While the last lot of training was postponed we need to look at timings for late 2015 or 2016 linked to the Conference.

b. NCOS – Craig Hallam
c. National Tree Register (live demonstration) - *Craig Hinton*
d. 202020Vision - *Robert Prince provided an update on the outcomes of the Road Tour and planning for the Seminar in Melbourne on how to Develop an Urban Forest. International guests where interested in concept and how the Nursery Industry were funding the campaign*

3. Chair – It is time for a change
   Craig indicated that he was stepping down as Chair as there were other priorities he needed to focus on. Proposed that Robert Prince step into role. Discussion to occur and canvas members.

4. NUFA locally. Many existing tasks not completed by key stakeholders. How do we re engage these stakeholders to complete outstanding tasks?

5. NUFA website – we need to move forward with this and populate the website with information.

   Data and case studies need to be provided by members so site is more useful.
   Tree Planting guides and reference link to the National Tree Standard need to be placed on this site.
   Data from Trees are Good program can be utilized.
   Arboriculture Australia will manage the site.

6. Current needs: Update our goals and ensure that new trends are being met.

7. General Discussion on matters arising from the floor

8. International Working Group. NUFA, TDAG model to go international with the assistance of the Arborday Foundation.
   a. TDAG introduction – Jeremy Barrell ref data at www.tdag.org.uk
   b. Arborday Foundation – Dan Lambe ref data at www.arborday.org
   c. Objective
   d. Structure
   e. Future
   f. First International Convention

Craig introduced International guests and tabled proposal for the NUFA model to be taken International. There was considerable discussion on how this would link into existing programs but all parties agreed that having a "linkage" would enable consistency in the language and measurement systems being utilised.

There was agreement that there are great opportunities for Trees to be part of all discussions on sustainable cities and the use of green infrastructure to combat climate change impacts.

Presentations during the conference by Jeremy, Dan and Philip would build on this concept.
A planning meeting was suggested for November 2015 with a potential Congress in the UK in March 2016.
Request that comments and suggestions how this could move forward to be sent to Craig/Dan.

National Urban Forest Alliance
nufa.com.au

Tree planting guide

Before planting your tree

Choosing the right tree for the right place is an important decision. When planting a tree, there are a number of things to consider, such as:

- **How big will the tree grow and can you provide the room it needs to grow?** Remember to check the mature height and spread (width) of the tree to make sure it will fit in the area you have chosen, or you may be making a problem for yourself (or others) in the future! Remember distances away from buildings, pavements and driveways—if the nursery label says 'dwarf', do some research to see if it really is.
- **Do you want your tree to provide shade in summer?** A deciduous tree (one that loses its leaves in autumn) will create shade in summer, but will let light into your house during winter. An evergreen tree will shade your house all year round.
- **What type of soil is in your garden—clay, loam or sand?** A quick way to check your soil type is to hold a small amount of soil in your hand and add a little water to just moisten the soil. Rub together and try to roll the moist soil into a log shape. If the log sticks together, then you have more clay in your soil. If it partially sticks, but is still crumbly, you have more loam. If it will not form into a log shape, and has large grains in it, it is mostly sand. The soil type affects watering and drainage. Heavy clay soils can slow drainage, causing waterlogging, while water can drain quickly through sandy soils. Adding organic matter such as compost to sandy soils will help hold moisture in the soil and provide nutrients for the tree. You may also want to check your soil pH as this will also affect the growth of your plant.
- **What is your local climate like?** How much rain do you get during the year? What is the average temperature in each season and how windy is your garden? What is the most desirable location? Is the planting site in full sun, semi shade or full shade?

You may need to give your plant extra water in dry months and protect your tree from the hot sun or from strong winds while it is establishing.

Purchasing your tree

Trees sold in containers or pots, bags or wrapped in hessian can be planted any time of the year. Bare rooted trees should be only planted in early spring while the tree and its roots are dormant.

Select healthy stock from a reputable nursery. Where possible check the root system to make sure the plant is not pot bound.

Purchase your tree close to the time of planting.

How to plant your tree

Preparing the hole

You will need to dig a bowl-shaped hole at least two to three times wider than the plant's root ball or the container the tree came in.

Keep the sides of the hole rough and loosen the soil at the base of the hole. This helps the roots spread easily into the surrounding soil.

Keep the base of the hole firm and 'measure' the plant in the hole (see Figure 1).

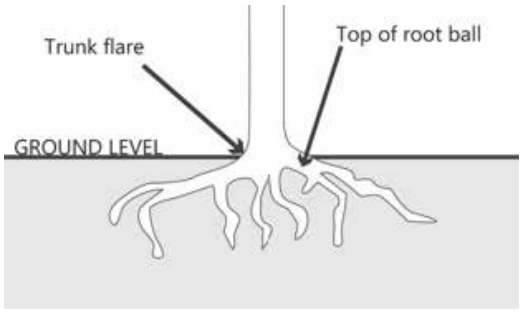

Figure 1

Aim to have the trunk flare—where the roots spread out from the trunk—at the finished height of the hole, or just above it. If the trunk flare is not visible, you might have to carefully remove excess soil from the top of the root ball to expose the trunk flare.

Carefully remove the container from around the root ball. Lift the tree by the root ball and place it in the hole. Lightly tease any roots circling outside the root ball. Make sure the plant is straight before you start back-filling the hole.

Remember, trees planted too deep will grow slowly and develop poorly due to a lack of air reaching the roots. There is also an increased potential for pest and disease problems (e.g. trunk rot).

Back-filling the planting hole

While holding the tree in place, half-fill the hole with the excavated soil, repacking the soil firmly without compacting. If your soil is very sandy, mix in some compost to increase water retention. As the tree's roots spread out from the original hole, amending the back-fill soil will not solve the problems facing the tree if the soil is poor. Add water to the partially-filled hole and let it soak in, then add more soil until you reach the trunk flare, then water it in again. A raised soil mound may be formed away from the trunk using the excess soil from the planting hole. This will create a 'moat' that will allow water to soak into the soil (see Figure 2). Fertiliser is not required at planting.

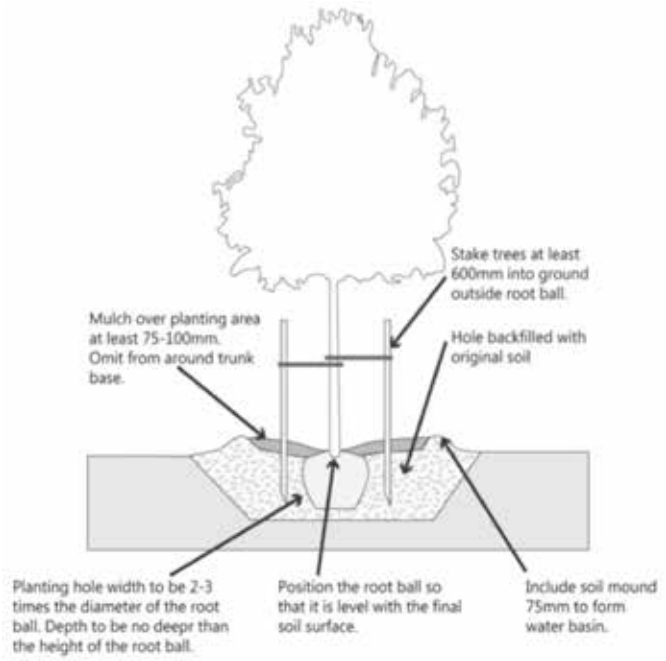

Figure 2

Staking your tree

When a tree flexes in the wind the trunk strengthens as it grows. While staking should not be required and is not recommended, there may be situations where you may decide to stake a new tree. If staking is required, make sure the tree is tied loosely so the trunk can still flex (see Figure 2). The two stakes and support cables should be removed after a year of growth.

Keeping the moisture in

Mulch on the soil surface helps to keep soil moisture in, moderates temperatures by cooling the soil in summer and retaining warmth in winter, and reduces weed competition. It is recommended that mature organic mulch is spread to a thickness of 75–100 mm to cover an area double the width of the tree's root ball. Where possible, make sure that no mulch is in direct contact with the tree's trunk (see Figure 3). Materials that may be used for mulch include leaf litter, bark chips, straw and stones.

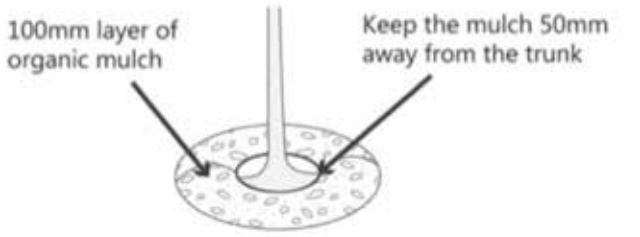

Figure 3

Watering your tree

Keep newly planted trees well watered for at least one to two years after planting. A transplanted tree has a small root system, so it is important that you water it at least once a week, taking any rainfall into account and being careful not to over-water. Watering less frequently but deeply is best. Maintaining adequate moisture is essential for survival and for developing a healthy tree. Check the soil a couple of times a week in summer to see if more water is needed. The soil should be moist, but not soaking wet, down to a depth of 200 mm.

Pruning your tree

The tree should not be pruned when planted except to remove broken or rubbing branches.

Wait for at least one year after planting before doing any pruning.

Further information

Contact members of the National Urban Forest Alliance by visiting www.nufa.com.au for more details.

Welcome to the Tree Register of Australia

A national record of trees of importance and value in Australia

The Tree Register of Australia is the perpetual national repository for information about the important trees in Australia. Any tree of importance can be recorded here – Avenues of Honour, memorial trees, Significant Tree Registers, as well as the best, biggest and rarest trees from around the country.

LOCATE A TREE

NOMINATE A TREE

CONTACT TREE REGISTER

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