

# PERSONALITY OF TREES

## Using Data to Connect Community to the Urban Forest

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### Introduction

The urban forest provides a range of social, economic and environment benefits to the community. These benefits include, but are not limited to: climate change resilience, improved health outcomes, reducing traffic speed, improved academic performance, attracting investment, increasing property values, providing habitat and benefiting biodiversity (Li & Sullivan, 2016, National Heart Foundation, 2019, Alvey, 2006). The need to connect the community to urban forestry is critical if the social, economic and environmental utility provided is to be considered commensurate to other urban planning products, like roads or footpaths.

The City of Burnside has undertaken a number of initiatives to promote its urban forest, including the development of an online tool called "*Urban Forest Interactive*" which has become a catalyst to promoting the city's urban forest and making tree data accessible to the public; allowing for informed decisions to be made.

As Philip Hewett (2002) said over 10 years ago, when discussing the importance of marketing the urban forest; "...few products ever get marketplace and establish market share without an effective marketing strategy'."

This paper discusses why promoting the urban forest is important, some of the Key features of *Urban Forest Interactive* and how the personality of trees helped shape an idea to connect community with nature.

### Background

The urban forest provides a range of benefits and these reflected in the adoption of canopy cover targets in the recently released South Australian 30 Year Plan for Greater Adelaide (SA Government, 2017). This plan now includes the following relevant canopy targets across the metropolitan area:

- 1) For council areas with less than 30% tree canopy cover currently, cover should be increased by 20% by 2045
- 2) For council areas with more than 30% tree canopy cover currently, this should be maintained to ensure no net loss by 2045

The delivery of these targets on ground however, is dependent on public support.

In 2016 the City of Burnside undertook a benchmark study of its canopy cover (SEED, 2016). This study showed that between 2010 and 2015 canopy cover had declined across all three study areas selected. A Canopy Action Plan (CAP) was developed in response to these finding and endorsed in 2017. The CAP was based on the following objectives: 1) *Education*, 2) *Protection* 3) *Planning*.

In 2018 the City of Burnside undertook a benchmark study to measure its community's understanding and attitudes towards the urban forest (City of Burnside, 2018a). A total of 376 people participated in the survey and 337 (90%) of those surveyed valued the conservation of the urban forest highly, however only 54% were aware of the rate of canopy loss.

The CAP and benchmark study led to the development of promotional materials; including an interactive online tool (*Urban Forest Interactive*) to promote and educate the community on the importance of the urban forest. Since the launch of *Urban Forest Interactive* in 2018, this initiative has won a number of awards and recognition in both Local Government innovation, urban forestry management and public health.

## Change and urban forestry

At the 1933 Census, 37.4 per cent of Australians lived in rural areas, but by 1976 this has changed to 13.9 per cent (Hugo, 2002). Australia is now one of the world's more urbanised countries with about 90% of Australians living in towns and cities. With a trend towards more people born and living in cities, there is a recognised disconnect between people and nature (Taylor, 2014). This estrangement from nature, as Taylor argues, necessitates a need to promote and educate the community to the benefits of nature and the urban forest.

Like many cities, the City of Burnside is experiencing consolidated housing pressures through planning reform, which in turn provides less room for trees and increases the likelihood of conflict between trees services, people and property. The City of Burnside is concurrently experiencing a change in demographics with rapid growth in overseas born residents. Trends in the nursery industry have, and will continue to influence the type and quality of species planted. The city of Burnside has a number of its tree population now reaching the end of their useful life expectancy and it is anticipated that 10% will need to be replaced over the next 10 years. Climate change is also bringing new challenges most notably by introduction of new pest and disease and risk to species adaptability. There is also the diverging and varying attitudes towards trees as recognised by Kirkpatrick and Davison (2017) with public either strongly advocating for, or against, and those whom are indifferent. How these attitudes may change in a society increasingly estranged from nature is concerning for the future of urban forestry management.

Managing the urban forest is therefore multifaceted and dynamic, and if a community becomes disconnected with the natural environment, implementing policies to address these challenges will become more difficult. The City of Burnside Urban Tree Strategy recognises the need to: *Promote and educate the community on the value of trees and their biodiversity.* This need is also reflected in a number of urban forest strategies globally. Promoting the urban forest is therefore becoming a recognised necessity in urban forestry management to address change and this is arguably more important now than ever before.

## We Love Trees

The City of Burnside is recognized and valued by its community as a green and leafy city (City of Burnside, 2016b). This recognition is in part due to its established tree lined streets, grassed verges and being home to some of the largest remnant Blue (*E. leucoxylon*) and Red (*E. camaldulensis*) Gums growing in any City within Australia.



**Figure 1 – The City of Burnside love of tree is best evident by its corporate Logo**

The city of Burnside's commitment to trees is evidenced in the corporate logo which prominently features a centralized image of a tree, employment of arborists since 1936 (The Advertiser, p.21, 1936), and being one of the first cities to implement an urban tree strategy.

Tree protection efforts can be traced back to 1912, where the Council objected to the removal of trees in Kensington Gardens, by what was then known as the Tramways Trust (The Advertiser, p.11, 1912), and have continued to develop policies and carefully manage and endeavor to preserve the Urban Forest. It would be reasonable to presume there is ongoing support for proactively managing trees and increasing canopy coverage in a city whose community highly values these assets. But the city is changing and will this love of trees continue into the future?

## **Personality and connection**

When pitching the idea to promote the urban forest, we demonstrated the City of Melbourne's marvelous initiative Urban Forest Visual (2019) which allows users to email trees. When explaining this function one was asked "What would the tree say back?" And although this was asked in jest it did provide an insight into a gap that exists between urban forestry management and community perception. It raised the question of whether there was a way to forge communication and understanding between species.

It is well accepted that human relationships are formed, at least in part, on an understanding of personality. We subconsciously, or maybe consciously, assign others by a personality type, sometimes even before we meet them. This helps us understand and predict others, and therefore manage our interactions. As arborists we intuitively recognize personalities of trees, through understanding species individual form, habit, response to environmental conditions, preferences to soil types and aspect, but others may see trees as inanimate objects. We have a unique perspective and knowledge that allows us to recognize how trees display similar personality traits to humans. There are those trees whom are caring or form symbiotic relationships with other species, those trees that are social, living in mixed woodland communities and are sharing resources, those trees that are overbearing, such as invasive weed species that dominate landscapes. The more we know about tree personalities, the more this helps us to connect; the more we learn the more we have an ability to understand and manage. Learning about personality helps us recognize and value diversity; not all people or trees are the same.

Connecting people to the urban forest, may help the public learn more about a tree's personality and form deeper connections. Bill Gammage's book "The Biggest Estate on Earth: How Aborigines Made Australia" (Gammage, 2012) describes the relationship traditional land managers had to land and how they promoted the importance and understanding of land through ceremony and storytelling. This deep connection allowed for the sustainable management of the land for over 60 thousand years. Connecting people to trees today, not only supports policy and helps deliver on ground activities, but research suggests makes people happier, fitter, improves learning and makes communities feel safer (Heart Foundation, Unknown) . In an endeavor to achieve these outcomes a review of global initiatives was undertaken to identify promotion tools that would work in our community.

## **Promoting the Urban Forest**

Over the past few years the City of Burnside has undertaken a number of initiatives to promote the Urban Forest. These include graphic devices, placed on Council vehicles and waste trucks, i-tree eco assessment of one of its major reserves (City of Burnside, 2018c), internal workshops and public surveys to benchmark the relationship between trees and the public, internal stakeholder workshops and a citizen science based project 'Urban Foresters' where the public help to monitor the urban forest.



Figure 2- Example of promotional material used by the City of Burnside (2019)

## Urban Forest Interactive

A number of large cities around the world now provide their tree data to the public. Cities that have undertaken these projects include, but is not limited to, the City of Melbourne, City of New York and the City of London. In 2013 the City of Burnside undertook a city-wide tree audit, capturing 37,000 public trees. This tree data was then used to drive a risk-based approach to urban tree management. Many other councils have undertaken similar audits capturing information on trees and mapping these using global positioning systems (GPS). Having this data allows cities to not only manage their trees, but provide information on their trees to the public.

*Urban forest Interactive* was launched in 2018 and allows the public to learn about those trees around them and, the benefits the trees provide and some of the challenges facing the urban forest.

Some of the key features of *Urban Forest Interactive* include:

- **Species Identification** – Users can select trees around them using a mobile device connected to the internet. Users are provided with information such as botanical and common name. Links to Wikipedia provide more information on species.
- **Ecosystem services values** - For the top 10% of most common species, detail is provided on some of the ecosystem services these individual trees provide. These ecosystem services include carbon stored, storm water intercepted, air pollution removed and oxygen produced.
- **Canopy Performance** – The ‘Performance Index’ (Figure, 3) ranks suburbs or wards performance by calculating the number of trees per 100 square meters with the number of tree vacancies and compares this to other suburbs within the City. This helps to inform tree planting and allows residents and Councilors to advocate for more tree planting in their local area.

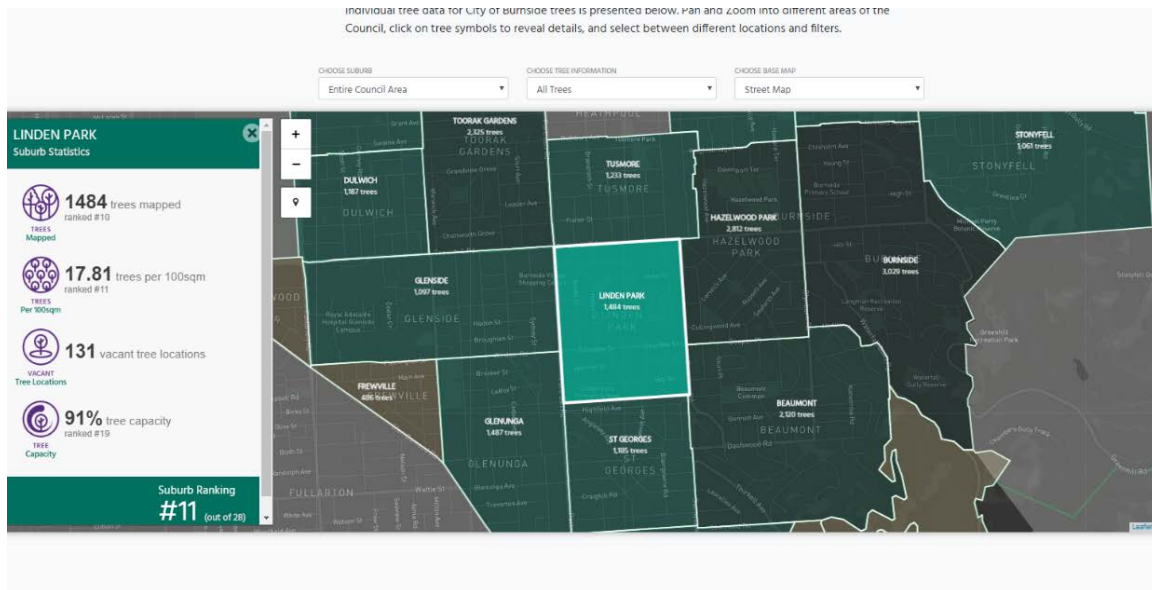


Figure 3. Screenshot of Urban Forest Interactive Performance Index ranking suburb tree performance

**Heat Island** - The heat map layer allows users to see the effects of Heat Islands and how areas with high populations of trees and open space help reduce the heat island effect locally (Figure 4).



Figure 4. Screenshot of Urban Forest Interactive Heat Island tool

Since the launch of *Urban Forest Interactive* in 2018, residents have used this online tool to advocate for the protection of trees and or increased tree plantings. Residents use it to communicate directly with Council by quoting the unique identification number given to each tree. This not only saves time for the City’s arborists when trying to identify a tree, but allows Council to keep accurate records on the history of trees and in turn the relationship members of the public have with trees.

*Urban Forest Interactive* was built entirely on open source software to keep operating cost down. There is a risk when developing systems like this that the data becomes redundant quickly, but using open source resources like Google Street View and Wikipedia reduces this risk.

Since the launch of *Urban Forest Interactive*, this initiative has won a number of awards and recognition in both Local Government innovation, urban forestry management and public health.

## Conclusion

Maintaining and increasing the canopy in urban environments is increasingly crucial for environmental, social and emotional wellbeing of the resident human and fauna population. The promotion of a city's Urban Forest is now recognized as an important tool in the effective management of the urban forest. The City of Burnside has developed an exciting initiative with *Urban Forest Interactive* which allows promotion of the urban forest using data. This relatively new platform presents a number of opportunities to deepen the connection between community and trees. The use of graphic devices, citizen science projects and other future initiatives are all underpinned by this core project.

Arborists are uniquely positioned, through their deep knowledge of trees and instinctive understanding of the personalities of trees to broaden and amplify the community connection to the urban forest. Working in conjunction with real time data driven tools like *Urban Forest Interactive* positions arborists to help foster and develop community values to help manage the urban forest into the future.

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