CITY OF SOUTH PERTH

URBAN FOREST STRATEGY 2018-2023

City of South Perth

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EXECUTIVE SUMMARY

Urban forestry is the practice of managing and maintaining trees and significant vegetation in city areas. A healthy urban forest is a vital community, environmental and economic asset.

The City of South Perth is an inner urban local government area known for its tree-lined streets and green spaces, including foreshore and bushland reserves, Perth Zoo and Collier Park Golf Course. The City's urban forest is made up of trees and shrubs on public and private properties, along streets and in reserves.

The urban forest contributes to the health of the City's residents, local environment and economy. Despite its value, the City's urban forest, as in cities across Australia and the world, is facing pressure from urbanisation, development, climate change and public perception. The Perth metropolitan area has doubled since the 1970s and this has resulted in the clearing of large areas of native vegetation.[1]

A dedicated tree planting scheme has resulted in the City's canopy cover remaining steady over the past 30 years.

The City actively manages a number of bushland and foreshore environmental reserves which add to the biodiversity of the urban forest. These actions have helped to maintain tree cover despite a continuing trend of canopy cover loss in private areas. The City must balance often competing interests to accommodate the current needs of its community, whilst also ensuring a healthy future for its residents and the environment.

The Urban Forest Strategy outlines the value of trees and vegetation, including their social, environmental and economic worth. It explains the benefits of the urban forest and highlights the pressures facing it. While the City has been able to increase its urban forest in public areas through a rigorous tree planting, maintenance and replacement program, it has little control over trees on private property. Through ongoing education and awareness campaigns it is hoped that trees will be seen as an asset and not a liability to private properties.

The Strategy details the actions the City is taking to manage its urban forest, actively working towards a goal of maintaining and increasing canopy cover into the future. If the City is to meet its goal, all suitable trees on private property should be protected and additional plantings encouraged. Additionally the City must plan wisely for the densification forecast in the Perth and Peel metropolitan region and ensure development is focused in areas to minimise overall tree loss.

The Strategy identifies key trends in the City's canopy cover over the past 30 years and provides a snapshot of the urban forest for each of the City's suburbs, outlining the key strengths, characteristics and threats to specific areas.

As the City faces increasing impacts from climate change, including drought, heat, diminishing groundwater levels, salinity and sea level rise, it will become vital that the urban forest is preserved and actively managed for future generations of humans and wildlife. Trees in urban spaces will help to reduce many of the impacts of climate change, providing important shade and cooling in a warming climate.

It is intended that this strategy will improve the perception of the value of trees, including their contribution to human and environmental wellbeing, and ultimately lead to their protection into the future.

The Urban Forest Strategy will guide the City through the next five years and help govern future documents such as the Public Open Space Strategy, the Tree Management Plan and the Local Planning Strategy as well as City policies and management practices.

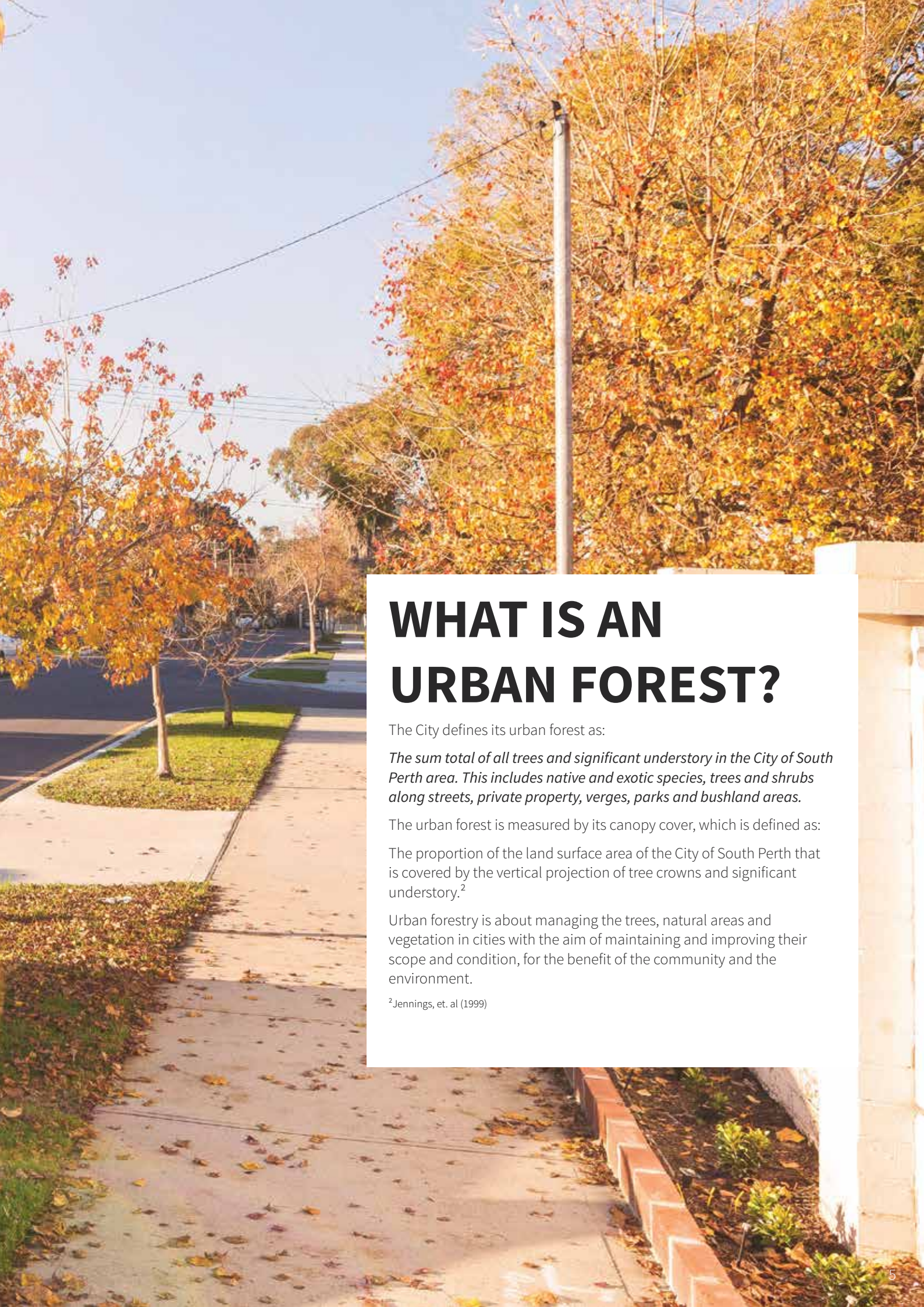
[1]Urban Bushland Council WA Inc. (2017)

THE HISTORY OF THE CITY OF SOUTH PERTH'S URBAN FOREST

The City of South Perth is built upon Beeloo Noongar country and its traditional owners have a long-standing relationship to the land dating back thousands of years. The Beeloo Noongar, or river people, lived in harmony with the environment, managing it sustainably. The Noongar people who used the area were known as Gareenup and their place was Gareenup (Mill Point). Between Gareenup and Richardson Park in South Perth was an area called Booryulup, or the place of the magic people. The Milyu foreshore reserve takes its name from the Aboriginal word for samphire (native succulent). The Como foreshore was known as Beenabup (eastern shore of the Canning) while the area of rushes near Millers Pool was known as Goorgygoogup. The South Perth side of Perth Waters is known as Gaboodjoolup or the place of the shore and further east is Joorolup, or place of the jarrahs.

Following European settlement, in 1833 the first residential lots were offered for sale in South Perth and the area began to slowly grow and develop. Karawara was once a pine plantation used for building materials. Remnants of the plantation remain at Collier Park Village, Collier Park Golf Course, the City's Recycling Centre and Curtin University.

After World War II, the State Government enlisted returned servicemen to plant street trees, a popular practice throughout Perth. It is estimated that about 80% of the City's street trees were planted by war veterans as they transitioned from service of country to life back in Australia. In the City, two trees were planted on each verge by servicemen, the main species being Jacarandas, Cape Lilacs, Queensland Box Trees and WA Peppermints. The green leafy neighbourhoods in many of Perth's inner suburbs are testament to the servicemen and women of Western Australia.



WHAT IS AN URBAN FOREST?

The City defines its urban forest as:

The sum total of all trees and significant understory in the City of South Perth area. This includes native and exotic species, trees and shrubs along streets, private property, verges, parks and bushland areas.

The urban forest is measured by its canopy cover, which is defined as:

The proportion of the land surface area of the City of South Perth that is covered by the vertical projection of tree crowns and significant understory.[2]

Urban forestry is about managing the trees, natural areas and vegetation in cities with the aim of maintaining and improving their scope and condition, for the benefit of the community and the environment.

[2] Jennings, et. al (1999)

THE URBAN FOREST IN THE CITY OF SOUTH PERTH

The City contains nearly 400 hectares (ha) of urban forest on private and public lands. Of this, the City actively monitors and manages over 26,000 trees and an unknown number of shrubs on public property. These include street trees, as well as all woody plants on City property, sports grounds, passive parks and reserves. There are also over 100ha of natural areas with significant tree coverage in the City, including nearly 10ha at Collier Park Golf Course that serves as prime Carnaby's Black Cockatoo habitat. There are significant numbers of mature trees and shrubs at Perth Zoo, the Royal Perth Golf Course, on State Government property and Education Department land within the City.

The City has maintained its overall canopy cover over the past 30 years through rigorous public space planting, maintenance and tree replacement program. During this period, coverage has increased by 20% in public places and decreased by 20% on private property. Over the next 10 years, opportunities for greening public spaces will plateau, as available space diminishes. It is therefore vital to continue to protect, maintain and enhance trees on private property.

BIODIVERSITY

The City has a high degree of biodiversity across its river, foreshore and bushland reserves which provide important ecosystem services. There are 15 actively managed environmental reserves in the City, which contain 330 species of plants that provide habitat for over 350 species of animals. The health of these areas is vitally important to the City's urban forest. Future impacts of climate change will affect the City's natural environment. A number of active works are underway to mitigate these impacts, including erosion control and flood risk planning. In natural areas the City encourages the planting of native species where practical.

BENEFITS OF THE URBAN FOREST

Improved air quality - Trees and vegetation play an important role in improving air quality, filtering atmospheric impurities and increasing oxygen levels.

Reduced urban heat - Areas with a healthy urban forest can have surface ground temperatures up to six degrees celsius lower in areas that are cleared of vegetation.[3] Shade from trees has the potential to cool roof temperatures by up to eight degrees celsius.[4]

Improved public health - Urban forests help to protect residents from extreme temperatures and can reduce heat-related illnesses and deaths. Studies also show that access to green spaces improves mental and emotional wellbeing and physical activity.[5]

Ecological links and habitat - Urban forests can provide important ecological links for native fauna, allowing animals to move through spaces via a green network. In cities, urban forests also provide shelter and safe spaces for animals.

Climate change mitigation and adaptation - Trees play an important role in climate change mitigation through carbon capture and storage, and by providing cooling via shade. In the future, these features will provide important adaptive effects against a warming climate.

Reduced stormwater flows and nutrient loads - Tree canopies and their roots reduce stormwater flows and nutrient loads that end up in waterways. Tree canopies catch and help reduce the impact of heavy rainfalls. Tree roots help reduce the nitrogen, phosphorus and heavy metal content in stormwater.[6]

Improved public amenity - Trees improve property values and the amenity of public areas, gardens and streets, contributing to the attractiveness and liveability of urban areas.

Reduced energy costs - Tree-lined city landscapes have the ability to cool urban areas by providing shelter from the sun and can reduce energy consumption and costs in buildings.

[3]Barber, Dr Paul (2015), [4]Moore, Greg (2014), [5]Brown, et.al (2013), [6]Moore, Greg (2014), [7]Moore, Greg (2014), [8]Moore, Greg (2013), [9]Environment Canada, (2005)


Trees and shrubs produce about one third of the world's oxygen
Trees are home to over 550 bird species in WA. Collier Park Golf Course is one of the most significant roosting habitats for Carnaby's Black Cockatoo in the Metropolitan Region
Two mature trees can provide enough oxygen for a family of four[9]
Trees reduce soil erosion and sedimentation into waterways
Trees can reduce roof temperatures by up to eight degrees celsius
Landscaping with trees can increase property values by as much as 20%
Trees reduce stormwater runoff and help to maintain urban water quality
The shade from trees can reduce a building's energy and lighting costs by up to 15%[8]
Areas with a healthy urban forest can have surface ground temperatures up to six degrees celsius cooler than cleared areas

PRESSURES

Subdivision and development - Higher density infill development is important to mitigate urban sprawl. Compact urban development enables people to access work and recreation opportunities on foot, by bicycle or by public transport, helping to reduce carbon emissions from transport. A healthy urban forest is a critical part of this infrastructure. However, unless action is taken to protect, enhance and increase vegetation in urban areas under development, the City's urban forest canopy could be significantly reduced. Over the past 30 years, the City has lost an estimated 20% of its urban canopy cover through development of private land.

Urbanisation/population increase - More than half of the world's population live in urban areas and by 2050 this will increase to over 65%. Planners therefore need to ensure that a balance is maintained between the needs of residents and the related environmental impacts. Over the next 20 years, it is anticipated that approximately 6,000 new dwellings will be built in the City to meet the growing population demand, increasing housing stock by 30%. It is important that this development be balanced with the preservation and protection of the urban forest.

Tree vandalism/poisoning - If trees are not valued, they come under threat from vandalism, affecting their health and longevity. When trees obstruct views in urban areas they can be subject to vandalism and poisoning. The City will continue to educate its residents on the importance of trees and encourage them to report tree vandalism and poisoning. It is an offence to prune or damage trees on public property. In cases where trees are illegally removed the City will install screens, signs and/or metal 'trees' for as long as it takes to plant and re-establish new trees in that location.

Infrastructure upgrades and maintenance - As infrastructure assets such as roads, footpaths and drainage are upgraded and maintained, existing trees are often negatively impacted. Careful planning to protect existing trees is essential. The City must also invest in a dedicated replanting program to replace trees damaged as a result of infrastructure upgrades and maintenance.

Transmission networks - As more areas move to underground power, the impact on street trees must be managed. Underground power enables street trees to mature properly without the need for power line clearance pruning. However, underground works can pose a risk to root zones and must be carefully implemented with an emphasis on protecting trees.

Climate change - Trees are susceptible to impacts of climate change. These include pests and disease, increased storm events, drought, heat, increased evapotranspiration, reduced groundwater levels, changing groundwater allocations, increased salinity, plant stress and reduced water quality.

Ageing tree population - The City will monitor its existing tree population to ensure that future planting programs compensate for an ageing tree stock. This program will allow for the 'lag' in growth between young and mature trees as well as the potential for any loss of juvenile plants due to theft, vandalism, damage or poor establishment.

Water levels - Perth's dry climate and low levels of rainfall increase pressure on groundwater levels and groundwater allocation management. In order to adapt to a drying climate, the City's future planting program must include tree species that are resilient to heat stress and low soil moisture.

Public perception - Urban forests and trees add enormous economic, social and environmental value to cities and their communities. However, trees can be seen as a nuisance where they compromise views, create debris, crack paved areas or clog gutters and downpipes. The City will work with the community to improve the perception of trees, foster protective behaviour and encourage people to tolerate any perceived inconveniences.

[10] United Nations Economic and Social Affairs (2014)

WHAT IS THE CITY OF SOUTH PERTH CURRENTLY DOING?

Annual planting program - Each year approximately 1,200 street trees are planted in road reserves as well as over 300 trees in parks and reserves. In addition, thousands of native trees and shrubs are planted in natural areas as part of annual bushland revegetation programs.

Street tree management - The City manages all street trees on verges, medians and roundabouts through a comprehensive maintenance program. Through the Senescent Tree Replacement Program, the City monitors the condition of older trees and proactively replaces them if they become unsafe or unhealthy.

Free verge tree planting - Residents can request a free verge tree to be installed and watered by the City for the first two growing seasons. In situations where more than one tree can fit on the verge the City can provide and maintain extra trees.

Trees for new citizens - Each new Australian Citizen receives a free native tree at every Citizenship Ceremony conducted by the City. This is to encourage residents to value the native environment and to add to the urban forest.

Street tree contributions - If trees are removed from the road reserve as part of an approved development, the responsible party must pay for the full asset value of the tree as well as the cost of new tree/s. Funds are placed directly into the Tree Replacement Budget which supports the annual planting program.

Register of Significant Trees - Approximately 154 trees are listed on the Register of Significant Trees and are given a Tree Preservation Order. These trees are protected and cannot be removed, pruned or maintained without written permission from the City even though they may be on private property.

Targeting vandalism - There is no tolerance for vandalism to public trees and the City will pursue maximum fines and penalties in any suspected case of wilful damage.

Nursery - The City has its own nursery for seed propagation and production of container stock for native revegetation projects and the street tree replanting program. The City grows native tubestock and street trees for other local governments including the Town of Victoria Park, the City of Perth and the Shire of Kalamunda.

Species selection and diversity - In order to support a resilient urban forest, City officers choose species that are best suited to individual sites based on environmental conditions and streetscape continuity. The trees are often grown in the City's own nursery.

Rooftop and vertical gardens - The City encourages developers and private homeowners to incorporate rooftop and vertical gardens in their designs and renovations to take advantage of their natural benefits and to complement landscape plants.

Environmental management - The City actively manages 15 environmental reserves through restoration, dieback and weed control, and revegetation programs. These reserves have important ecological value and provide valuable corridors and habitat for native animals and birds.

Public open space management - The City manages over 80 parks and gardens which are designed to provide passive and recreational public areas and space for existing trees to mature, and new trees to be planted.

Strategic alignment - The City is committed to enhancing and maintaining its urban forest and identifies it specifically in the Strategic Community Plan 2017-2027. The Urban Forest Strategy will also serve as a guiding document for the Local Planning Strategy as well as the Public Open Space Strategy, the Tree Management Plan and City policies and management practices.

Technology - By analysing aerial photography and infrared data the City monitors the coverage and health of its urban forest to meet goals and manage trees effectively. Additionally the City uses spatial data provided by the Department of Planning, Lands and Heritage to assess the amount of 'negative space' available for future tree planting.

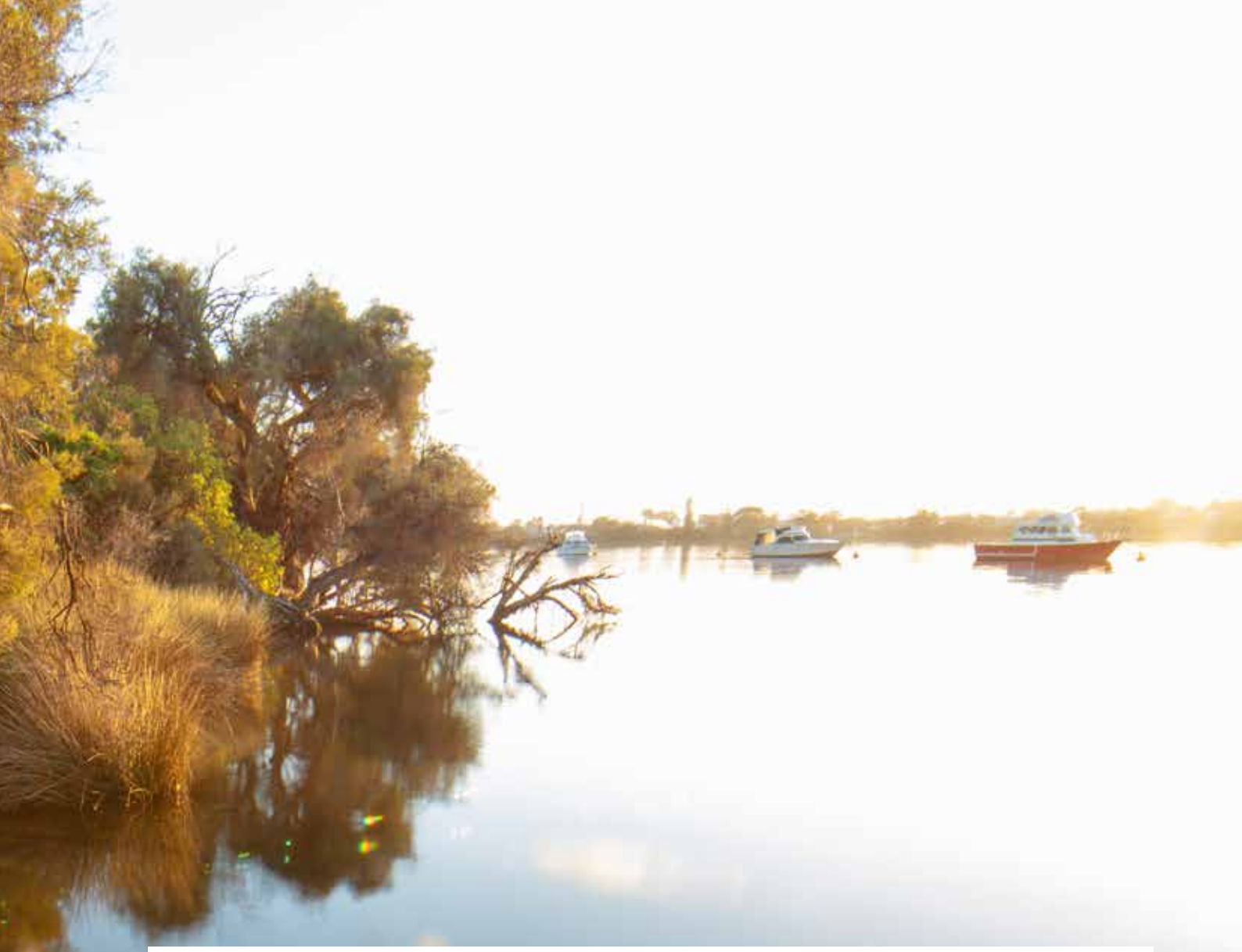
Education - The City delivers public education workshops about the value of trees and green spaces in partnership with organisations including Millennium Kids, Living Smart and Great Gardens. Additionally, City officers will visit local schools to talk to students about the importance of urban forests.

Free garden mulch - The City's Recycling Centre provides free mulch to residents. Mulch has many benefits for the urban forest including conserving soil moisture, adding organic matter, suppressing weed germination and moderating soil temperature.

Ongoing improvement - It is important that the City not only provides these services but continually works on improving in all areas and incorporating new ideas in relation to its urban forest.

TRENDS

Between 1985 and 2015, total canopy cover in public areas increased from 135 to 220ha.
During the same period, canopy cover in private areas has decreased from over 267 to 180ha.



Over the past 30 years the City has maintained its overall canopy cover. This has been possible because of an increase in public tree planting along streets, on City owned properties and in parks and reserves, resulting in an increase in cover in public areas from 135 to 220ha. During the same period, canopy cover in private areas has decreased from over 267ha, or 66% of the urban forest to 180ha or 45% of the total urban forest. If this trend continues, the City will not be able to maintain its current canopy cover.

This trend reflects the pattern of urbanisation experienced in cities across the world and will present new opportunities and challenges for sustainable development. The City will need to navigate this trend and actively support the protection and enhancement of trees on private property, while continuing its public tree planting program.

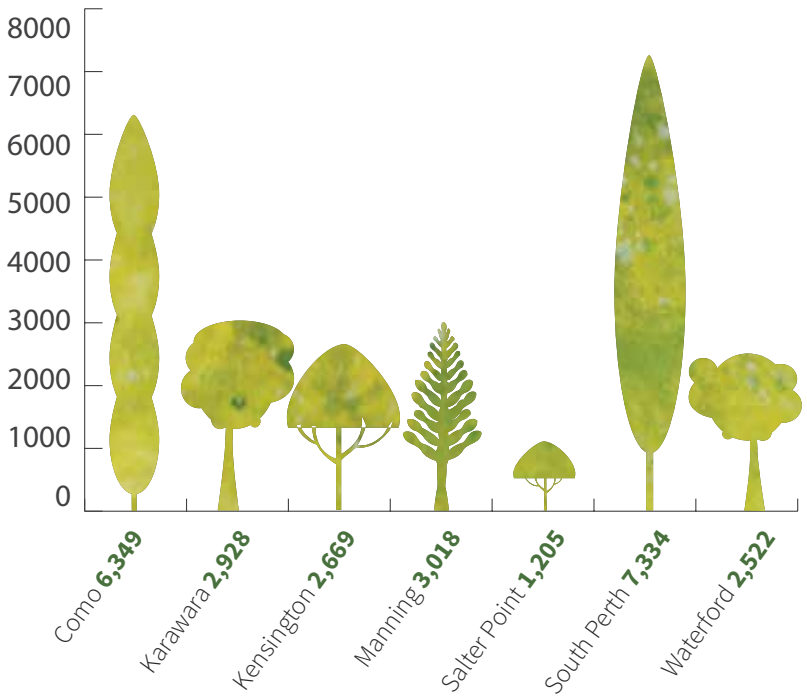
Over time, climate change will impact the nature and type of the City's urban forest. The City will need to track and respond to changing climate patterns and their impact on vegetation. Environmental management will need to support species in conservation reserves to adapt to the impacts of climate change including saltwater incursion, inundation, increased storm events, changing groundwater levels, and tighter water use restrictions for public open spaces.

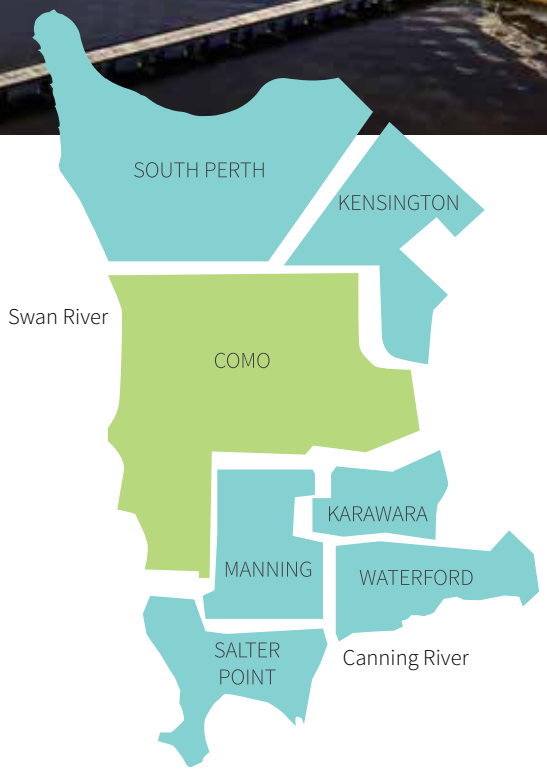
With the increasing popularity of shared vehicles, on-demand services such as Uber and advancements in driverless technology, private vehicle ownership is anticipated to decrease over time reducing overall road use and parking requirements. The City will monitor these trends to identify opportunities for reclaiming underutilised streets and parking areas as natural areas. This may also provide opportunities for planting more street trees on verges and unused crossovers.

SUBURB PROFILES

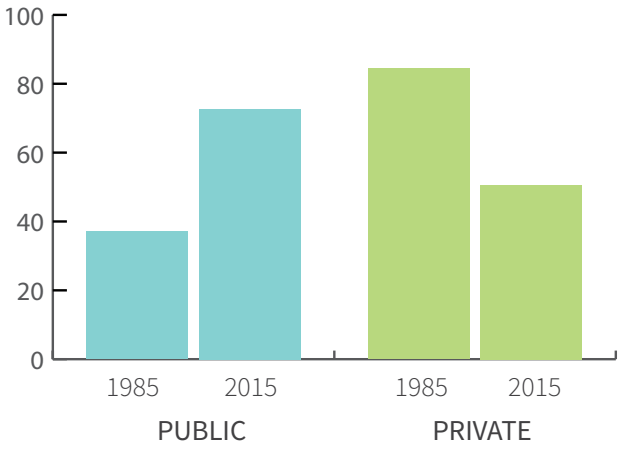
Suburb profiles provide insight into the canopy cover of different areas in the City of South Perth, and show the opportunities and challenges for each suburb. In most areas, data shows that tree cover in private areas was far higher in 1985 than in public areas. By 2015, public tree canopy was generally greater in all areas with a significant reduction in private trees.

NUMBER OF STREET TREES PER SUBURB

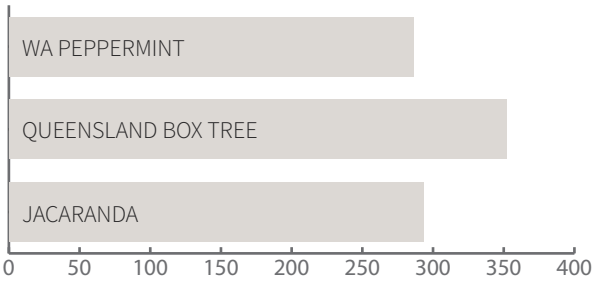




COMO CANOPY COVER (ha)



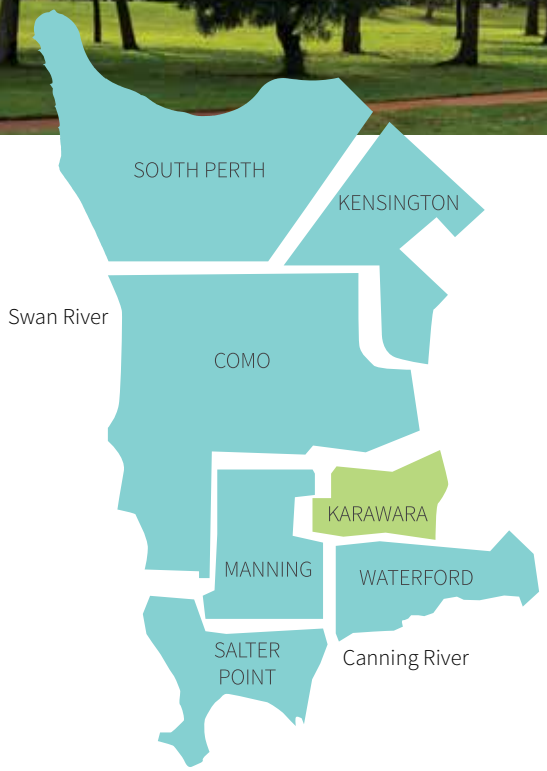
MOST COMMON STREET TREES - COMO



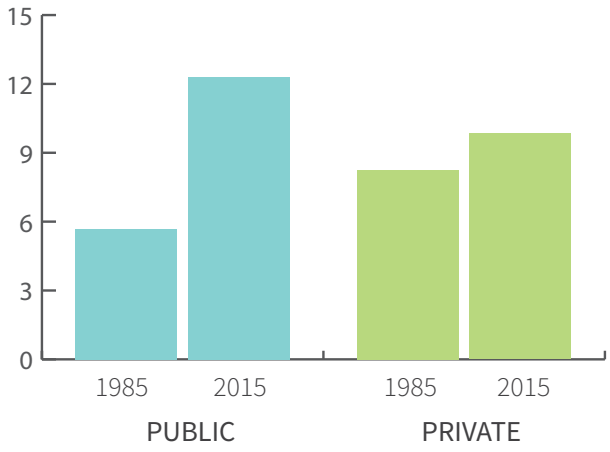
COMO

Como is the largest and most populated suburb in the City, with 15,603 residents. Approximately 19% of its 650ha is urban forest, including 14.49ha of bushland. Overall there has been an increase in the number of trees in the public realm in part due the City's biodiversity project for Carnaby's Black Cockatoo which is focused primarily around Collier Park Golf Course. Other significant green areas include Neil McDougall Park as well as Comer, Coolidge, Olives, Collins, Bill Grayden and Ryrie Reserves. These areas have been identified for more intensive tree planting.

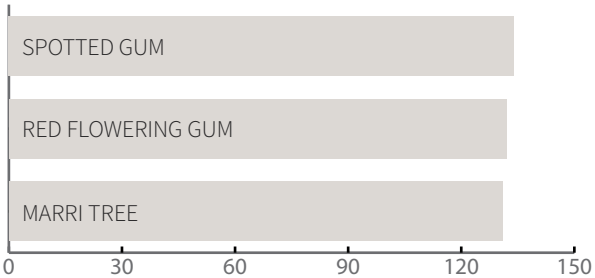
With infill development anticipated, this suburb is expected to experience an ongoing trend in the reduction of trees on private land. Over the coming years the City will encourage private planting and focus on replenishing street trees.



KARAWARA CANOPY COVER (ha)



MOST COMMON STREET TREES - KARAWARA

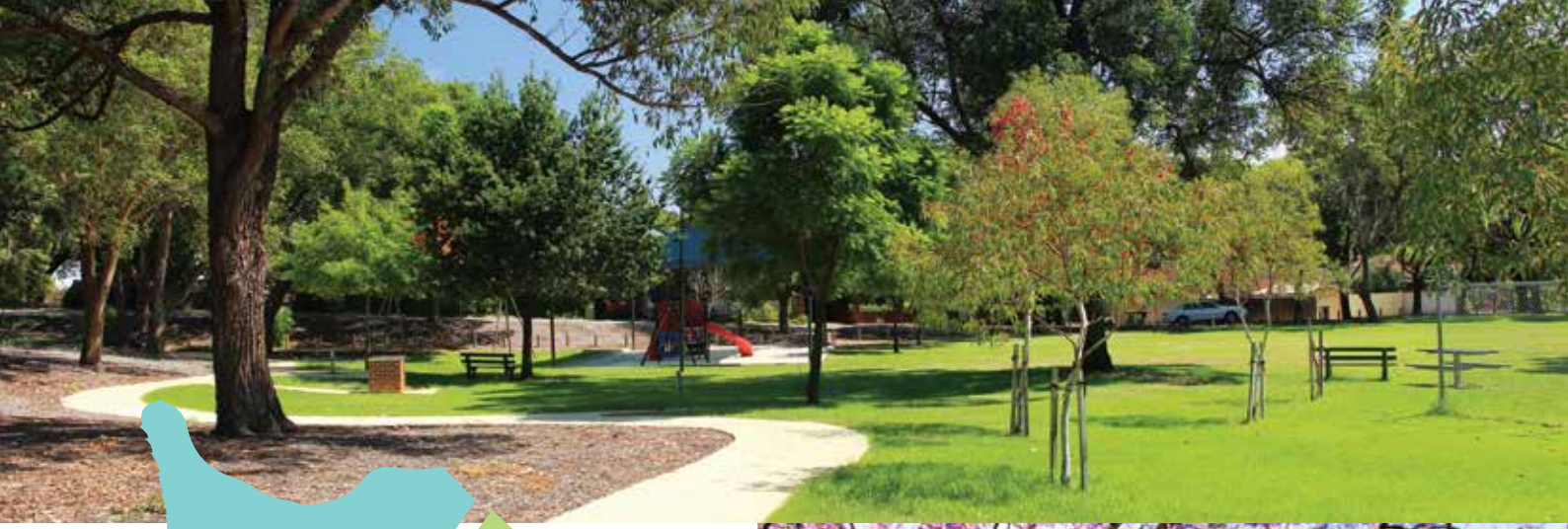


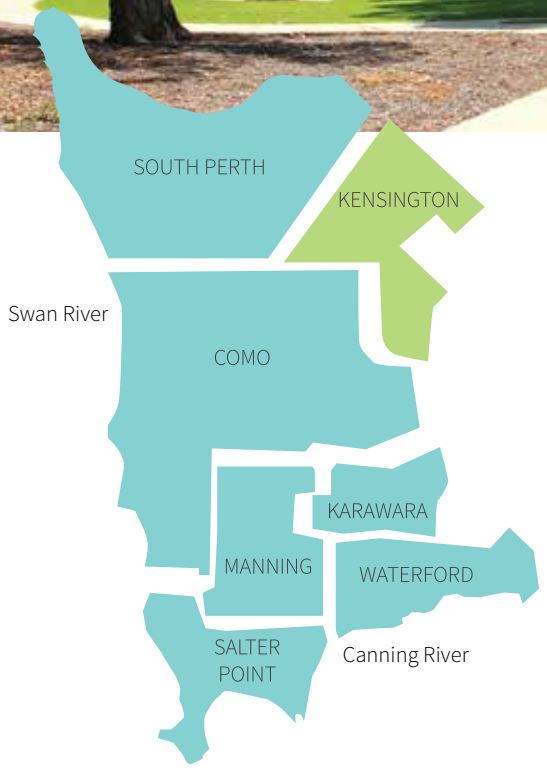
KARAWARA

Karawara has a residential population of 2,462. Its urban forest has increased from 12.92ha in 1985 to 20.43ha in 2015. This represents 13% and 21% of its 98ha total surface area respectively.

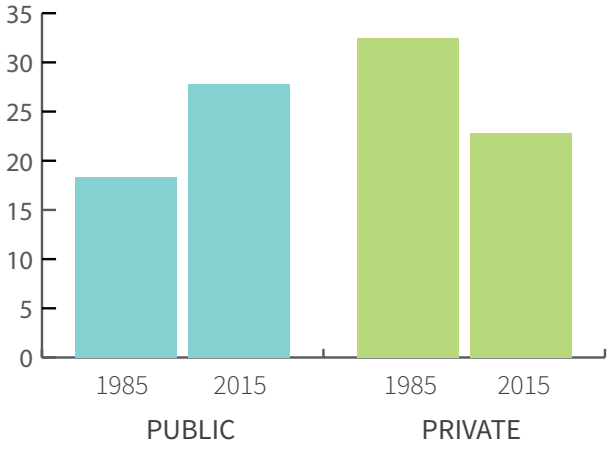
The Karawara Greenways and George Burnett Park have both contributed to the increase in the suburb's urban forest and have the potential to support ecological corridors and areas for offset planting. Although some trees have been lost due to private development in the area, many existing trees have been allowed to mature and add value to the overall urban forest. Karawara has significant green space and 4.99ha of bushland, largely concentrated at Goss Avenue Bushland Reserve.

The City will continue to plant trees throughout public open spaces in Karawara as well as encourage private landowners to preserve existing trees and plant new ones.

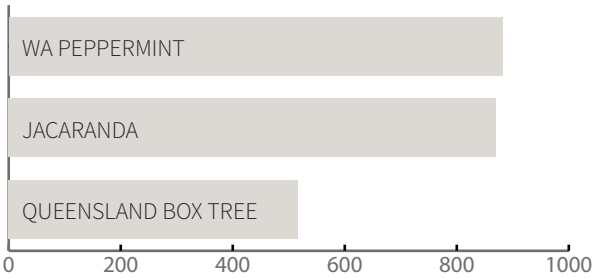




KENSINGTON CANOPY COVER (ha)

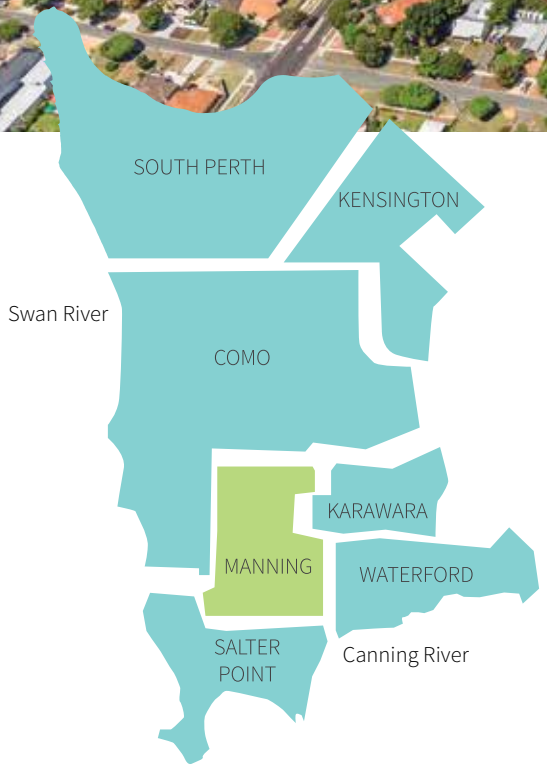


MOST COMMON STREET TREES - KENSINGTON

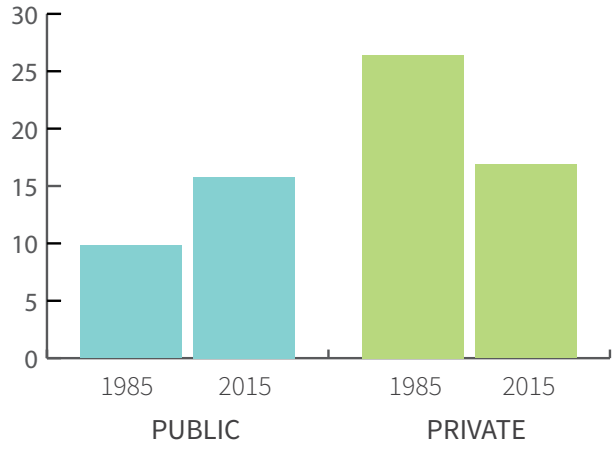


KENSINGTON

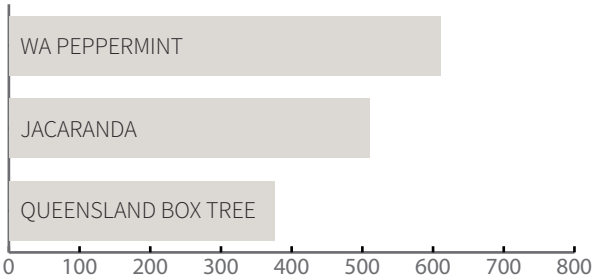
Kensington has a residential population of 4,688 and is known for its tree-lined streets and single dwelling lots. Over 25% of its 201ha is urban forest, which has remained relatively static over the past 30 years, despite a significant decrease in trees on private property. Between 1985 and 2015, the urban forest in the private realm has decreased by 10ha while increasing by a similar amount in the public realm during this period. Significant green areas include David Vincent Park and the Bill McGrath, Moresby and Morris Mundy Reserves. Kensington has 0.71ha of bushland.



MANNING CANOPY COVER (ha)

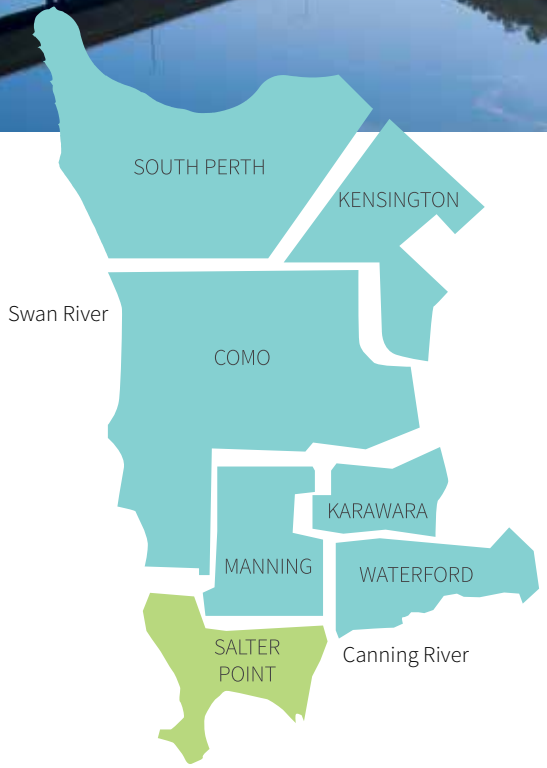


MOST COMMON STREET TREES - MANNING, SALTER POINT

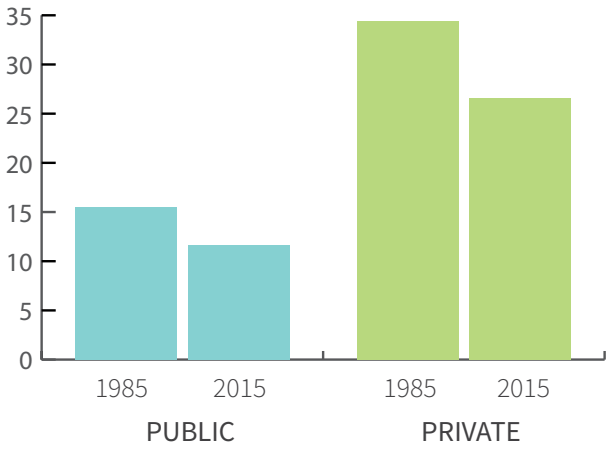


MANNING

Manning has a residential population of 4,316, covering 169ha. Between 1985 and 2015 its urban forest decreased slightly from 36.1 to 32.62ha. The area is under significant pressure from ongoing development and subdivision. This is reflected in the decrease in its canopy cover in private areas from 26ha in 1985, to 16ha in 2015. Trees and vegetation have increased in public areas during this period by approximately 6ha. There are 4.99ha of bushland in Manning and significant green areas include James Miller Oval, Bradshaw Conochie Park, and Challenger and Davilak Crescent Reserves. The Manning Senior Citizens Centre and Manning Primary School also contribute to the urban forest.



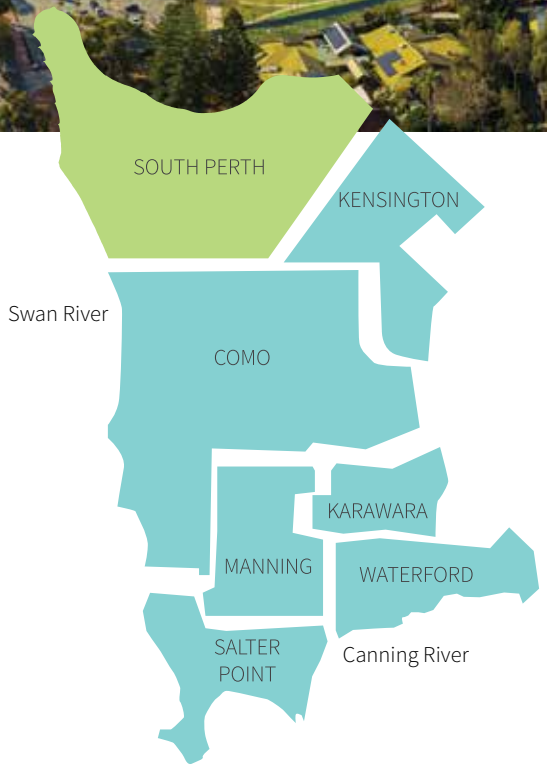
SALTER POINT CANOPY COVER (ha)



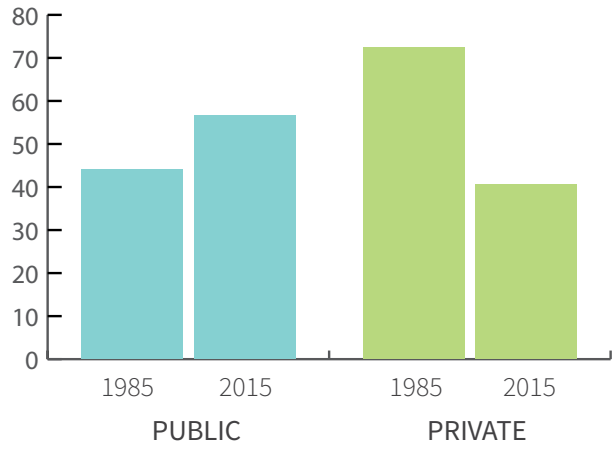
SALTER POINT

Salter Point has a residential population of 3,103 over 185ha. Its urban forest has declined from 25% of its total surface area in 1985, to just over 21% in 2015. This is due to a significant decrease in private canopy from 34.42 to 26.62ha during this period.

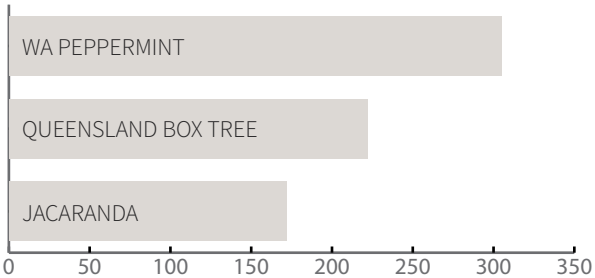
The suburb is home to important conservation reserves including the Salter Point Lagoon Conservation Area and Canning Foreshore which contain 42.55ha of large bushland. Other areas with valuable canopy include Mt Henry Point, Mt Henry Spit and Sandon Park.



SOUTH PERTH CANOPY COVER (ha)

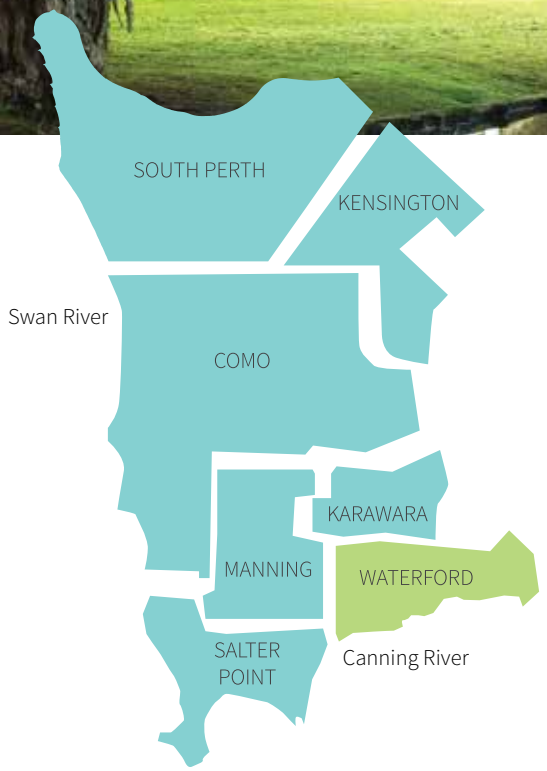


MOST COMMON STREET TREES - SOUTH PERTH

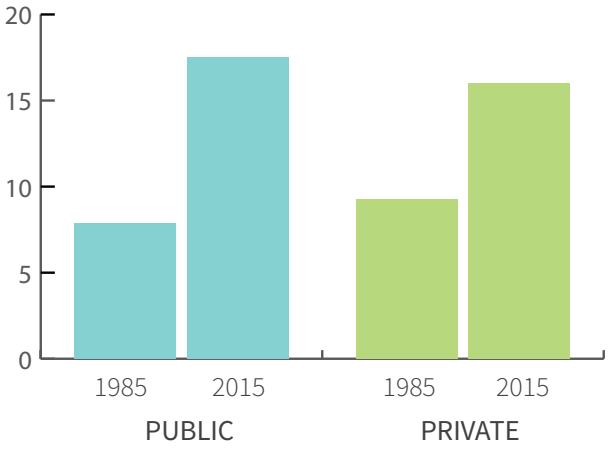


SOUTH PERTH

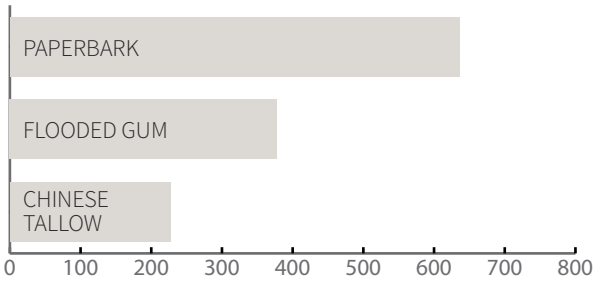
South Perth is the most densely populated suburb with 13,769 residents across 425ha. Between 1985 and 2015, the private urban forest has decreased by over 30ha, due to high density residential and commercial development. While trees and vegetation in public areas has increased during this time, it has not been enough to compensate for the loss of trees and vegetation on private property. The type of development in this suburb puts pressure on the urban forest, particularly street trees, as large buildings with minimal setbacks leave little room for maturing trees. The construction process itself also presents challenges for preserving existing trees. Large green areas include Sir James Mitchell Park, Esplanade Reserve, Mill Point Reserve, Perth Zoo and the Royal Perth Golf Course. The suburb contains 15.43ha of bushland and significant street trees include the London Plane trees along Mill Point Road.



WATERFORD CANOPY COVER (ha)

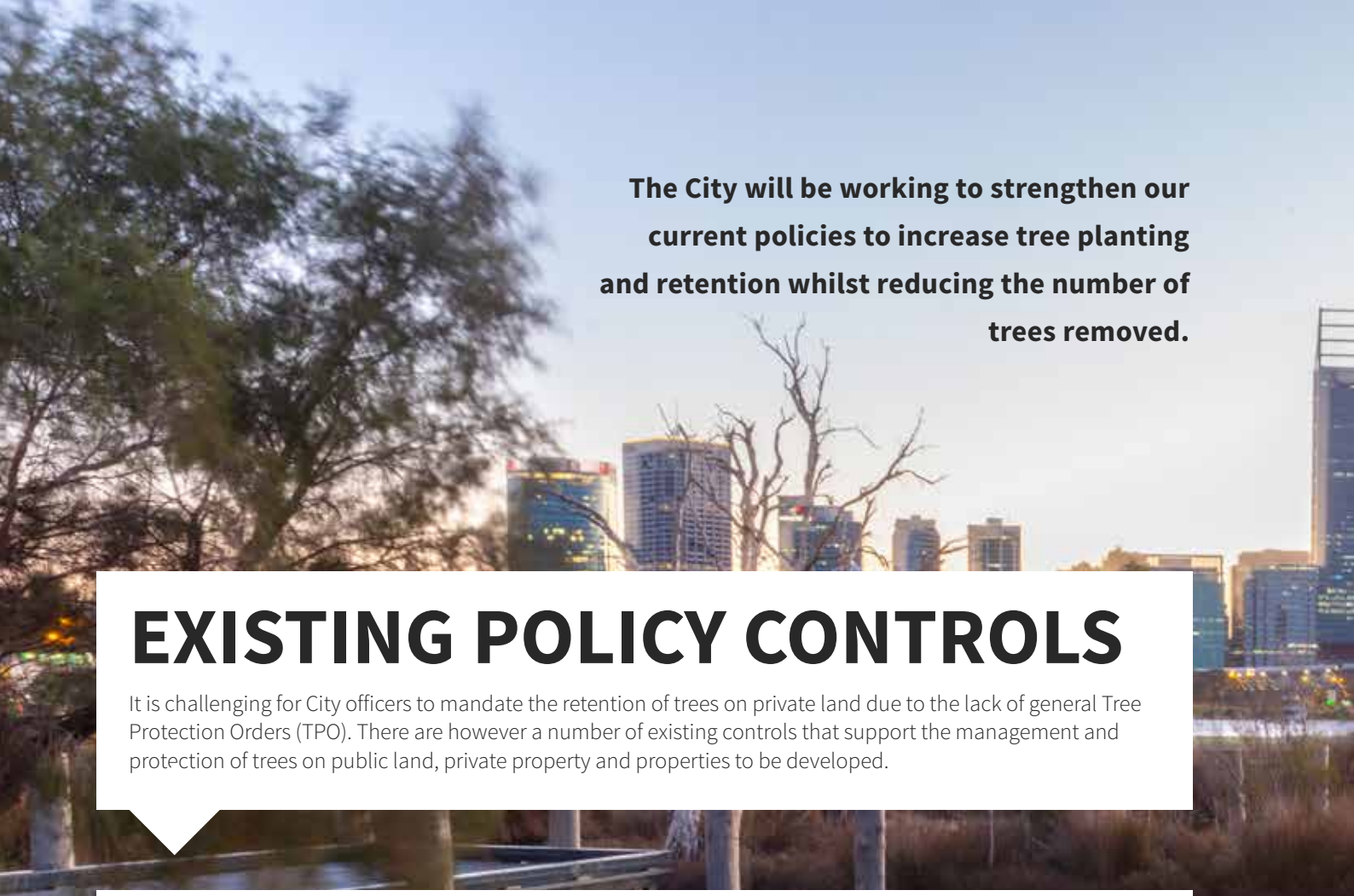


MOST COMMON STREET TREES - WATERFORD



WATERFORD

Waterford has a residential population of 2,356 people across 156ha. The suburb is rich with natural areas including riparian wetlands, living streams and mature trees. Waterford has 19.12ha of native bushland which provides valuable habitat for wildlife as well as passive and recreational opportunities. Between 1985 and 2015, the urban forest has nearly doubled from 16.88 to 32.35ha. Historically this area was Banksia Woodland before being cleared for open farm land with very few trees other than the pine trees near the university. Once developed, the introduction of roads and eventually homes led to planting of street trees and home gardens which increased the overall number of trees. Significant plantings also exist at the Clontarf Aboriginal College and Bodkin Park.



The City will be working to strengthen our current policies to increase tree planting and retention whilst reducing the number of trees removed.

EXISTING POLICY CONTROLS

It is challenging for City officers to mandate the retention of trees on private land due to the lack of general Tree Protection Orders (TPO). There are however a number of existing controls that support the management and protection of trees on public land, private property and properties to be developed.

Local laws
It is illegal for unauthorised persons to prune, remove or otherwise deal with any tree which is under the care, control or management of the City under the City's Public Places and Local Government Property Local Law (2011) and the *Local Government Act (1995)*.

Policy P205 - Tree Preservation
The objective of this policy is to offer protection to trees considered to be of City-wide significance on public and private land. The Council has adopted provisions in the City's Town Planning Scheme to support this. Under this policy, City staff and residents are encouraged to recommend trees considered to be of City-wide significance for inclusion in the Register for Significant Trees.

Policy P206 - Urban Forest
The objective of this policy is to ensure that tree cover in the City is maintained and enhanced where possible in light of increased densities on private land, a drying climate, and ageing tree stock. This policy is concerned with the management of trees on land under the care and control of the City.

Policy P350.5 - Trees on Development Sites and Street Verges
The objective of this policy is to promote the design of residential development that enables trees to be retained, to ensure that new trees are planted to preserve or enhance the City's desirable 'green' character and to preserve street trees.

Policy P302 - General Design Guidelines for Residential Development
The objective of this policy is to preserve or enhance desired streetscape character, and to promote strong design compatibility between existing and proposed residential buildings. Its intention is to enhance residential amenity standards generally. In relation to trees, this policy requests landscaping plans to be submitted with all developments that need planning approval and any existing trees are to be retained in accordance with Policy 350.5. The policy also encourages landscaping in communal areas.

Town Planning Scheme No. 6
The Town Planning Scheme clause 6.13 offers protection to trees considered to be of City-wide significance on public and private land. The City can also raise emergency orders for a tree to be protected (stay of execution) even if it is not yet on the Register of Significant Trees. City officers will work to add more significant trees to the register as part of the Urban Forest Strategy.

Local Planning Strategy
The development of the City's Local Planning Strategy will take on board the environmental aspects of this Urban Forest Strategy.

Sustainable development means the City must accommodate environmental, economic and social priorities when protecting and managing its urban forest.

SUSTAINABLE DEVELOPMENT

As Perth's future development moves from greenfield to infill, inner-urban areas will become even more highly sought after. Urban design will move towards favouring smaller verges and crossovers, leaving less space for trees. Climate change impacts will also intensify, placing pressure on the health of the urban forest through drought, changing groundwater levels and salinity. The City's ageing tree stock will need to be managed in advance.

The City will need to continue to adopt sustainable development to balance competing demands for land and support economic, environmental and social well-being while protecting and enhancing the City's urban forest into the future.

STRATEGIC COMMUNITY PLAN ALIGNMENT

The City's Strategic Community Plan outlines the community's aspirations, priorities and vision for the future of the City and sets out the key strategies required to achieve these aspirations.

VISION: SUSTAINABLE URBAN NEIGHBOURHOODS

Community priorities:

- Retain and enhance our open spaces that attract and cater for all generations
- Promote biodiversity and encourage residents to take ownership of looking after the City's natural environment.

OUTCOME 3.3: ENHANCED ENVIRONMENT AND OPEN SPACES

Maintain and improve ecosystem biodiversity of the City

Action 1: Increase the diversity of species
The City will continue to increase the diversity of tree species in public areas, and encourage diversity on private property. A range of species will be more resilient to the natural pressures facing the urban forest, including drought, extreme weather events, pests and disease and increasing temperatures.

Protect and enhance the City's urban forest

Action 1: Improve the health of our urban forest
The City will work to improve the health of vegetation across the City by proactively managing pests and diseases, maintaining healthy canopies through best practice pruning and providing mulch and other soil amendments for greater moisture retention wherever possible. The City will also utilise spatial data such as infrared photography to analyse the overall health of the urban forest and respond to any specific concerns.

Action 2: Review and improve City policy
There are a number of ways to improve the protection of trees and the urban forest through innovative and direct policy measures. These will include protection for existing trees on private property, as well as measures to increase trees and vegetation in future development.

Action 3: Register more significant trees
The City will investigate ways to make significant tree registration more accessible. Having more trees registered allows for a greater level of protection and accountability.

Action 4: Facilitate offset planting
Where subdivided land is unlikely to retain existing trees, or the existing trees are not suitable for retention, the City will encourage offset tree planting to compensate for any loss. Unused portions of sports grounds, land around facilities, parks and road reserves will be made available for offset planting funded by developers. Space in these areas is finite so this option can only be used as part of a greater solution to mitigate tree loss in developments. The City is working to identify other areas and assess their capacity to support more vegetation. Expect to see more and more trees planted into all areas of the public realm.

Action 5: Investigate green roofs and walls
There are many ways to support urban forest through innovation. As the City continues to develop and lose available space at the ground level, it will consider the potential for green roofs and walls to compensate. Cities in Europe, such as Linz in Austria, mandate green roofs for developments with rooftops greater than 100m2.

In Australia, the City of Brisbane recognises green roofs as a way to take action on climate change. The City of Sydney has adopted a Green Roofs and Walls Policy and Implementation Plan.

In high density areas such as the South Perth Activity Centre and Canning Bridge Activity Centre, the City recommends that developers utilise rooftop and wall gardens to achieve landscaping requirements.

Action 6: Increase trees on private property
The biggest threat to the future urban forest is the removal of trees from private property. The City will work with residents, builders and developers to promote sustainable development that preserves existing trees and provides adequate space and soil volumes to support mature trees. The City will also work with local schools to educate children about the value of trees and the benefits of an urban forest.

It is important to understand that not all trees are worth preserving. In the past some inappropriate species have been planted in poorly thought-out locations. Retaining such trees often leads to significant issues and safety concerns and consideration must be given to what trees are recommended for retention, and why.

Action 7: Activate our green infrastructure
With increased planting, as well as hydro zoning, the landscape in some of our parks and reserves will change from irrigated turf-grass to areas of greater canopy coverage and shade. This is an opportunity for the City to activate these areas for other social and recreational purposes such as gathering sites, barbeque areas, nature play, exercise areas, outdoor classrooms as well as specialised gardens such as orchards, native gardens, and small arboretums. The City will continue to provide open space and good quality turf for competition and leisure sport, and explore opportunities to simultaneously improve community well-being and environmental outcomes.

GOALS FOR 2018-2023

Along with the actions on pages 26 and 27 the City has set specific goals for 2018-2023.

FIVE YEAR TARGETS	HOW WE WILL ACHIEVE THIS
• Maintain current canopy coverage at 20% with no net loss	• Increase planting on public land and preserve existing trees wherever possible
• Plant 7,500 street trees	• Continue the annual street tree planting program and augment with additional plantings by private developers
• Plant 2,500 trees on parks and reserves	• Identify available space in City parks and reserves and continue annual planting program and park upgrades
• Plant 1,000 trees on school land	• Work with local public and private schools to sponsor planting days and teach students about the benefits of trees and the urban forest
• Increase species diversity	• Monitor existing trees and increase the diversity of newly planted stock so that no one species represents more than 10% of the total tree population i.e. less Jacarandas, more natives
• Identify all public space available for tree planting	• Work with State Government agencies and use existing data to specifically map the space available for tree planting
• Create a City Tree Management Plan	• The City is working on a new plan to provide further details about the City's Tree management
• Increase nursery production by 25%	• Grow more native tree species and maximise the use of the space around the City's Operations Centre
• Keep improving	• Investigate areas for improvement i.e. partnering opportunities, storm water capture, maximising verge plantings, tree/street competitions
• Increase the number of protected trees	• Promote the Significant Tree Register and increase the number of listed trees by 25%

KEY CITY PROJECTS

The following projects have or will result in significant plantings:

SPECIFIC TREE PLANTING PROJECTS:

- Millers Pool (2017) - 88 WA native trees
- Hope Avenue Reserve (2017) - 80 trees
- Hayman Road roundabout (2017) - WA native trees and groundcovers
- Ernest Johnson Reserve (2018) - 76 new trees
- Ryrie Reserve (2018) - 58 new trees
- Bill Grayden Reserve (2019) - 68 new trees
- Olives Reserve (2019) - 75 new trees
- Ongoing tree planting in Karawara Greenways.

SPECIFIC REVEGETATION PROJECTS TO 2023:

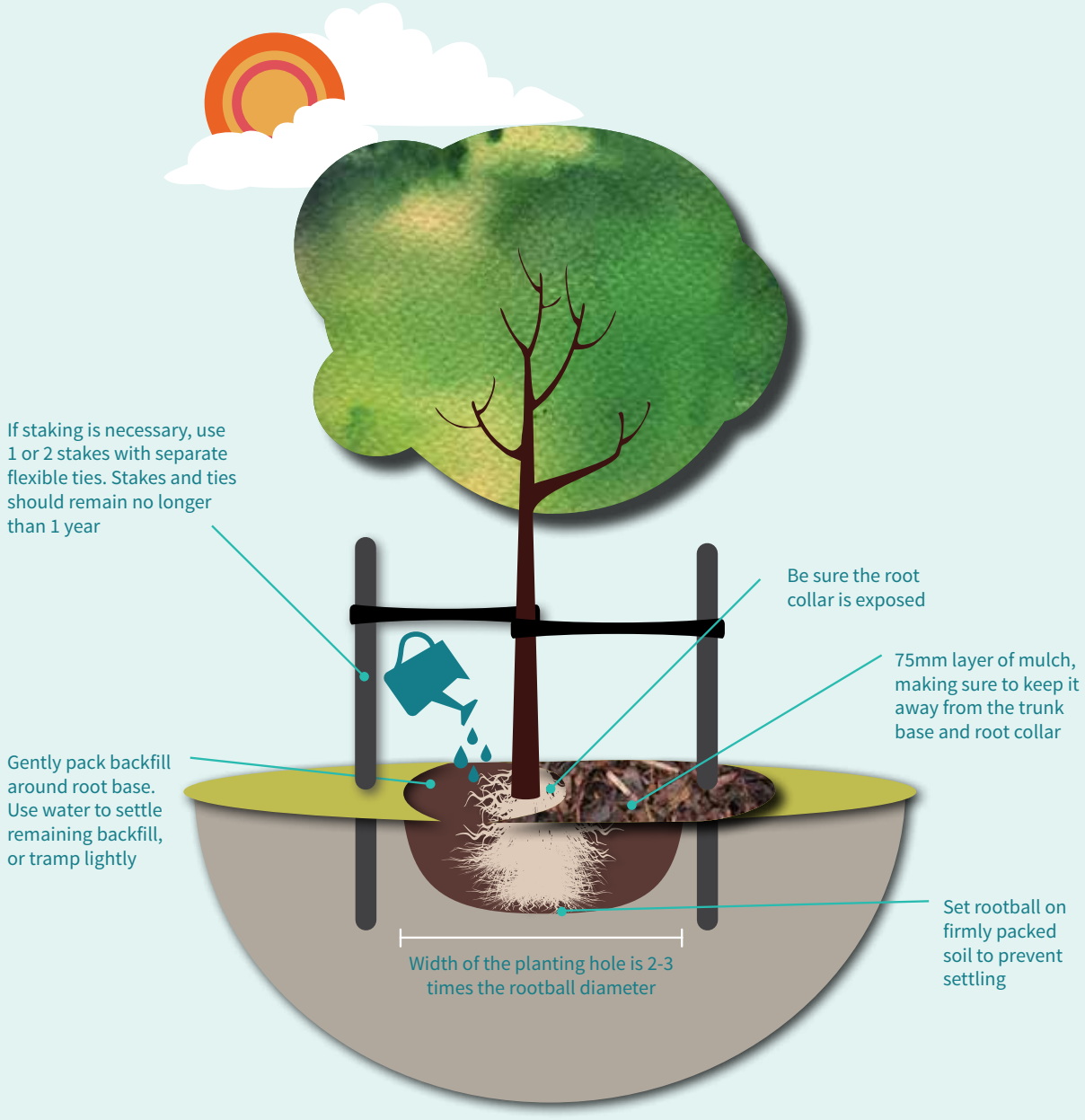
- Cygnia Cove Natural Area
- Clontarf Foreshore
- Mt. Henry Spit
- Salter Point
- Goss and Hogg Reserves
- Milyu Reserve (in collaboration with Department of Biodiversity, Conservation and Attractions)
- Collier Park Golf Course (Carnaby's Black Cockatoo habitat).

WHAT YOU CAN DO?

There are a number of actions you can take to protect and maintain your urban forest.

- Request a street tree - residents can request free trees to be planted on verges
- Plant more trees on your private property
- Preserve existing trees on your private property
- Learn about the City's urban forest
- Nominate trees for the Register of Significant Trees
- Attend planting days
- Start a community conservation group
- Enjoy your street trees, but do not prune or damage them
- Report any suspected vandalism
- Minimise your use of pesticides, herbicides, and household chemicals and dispose of them properly.

HOW TO PLANT A TREE

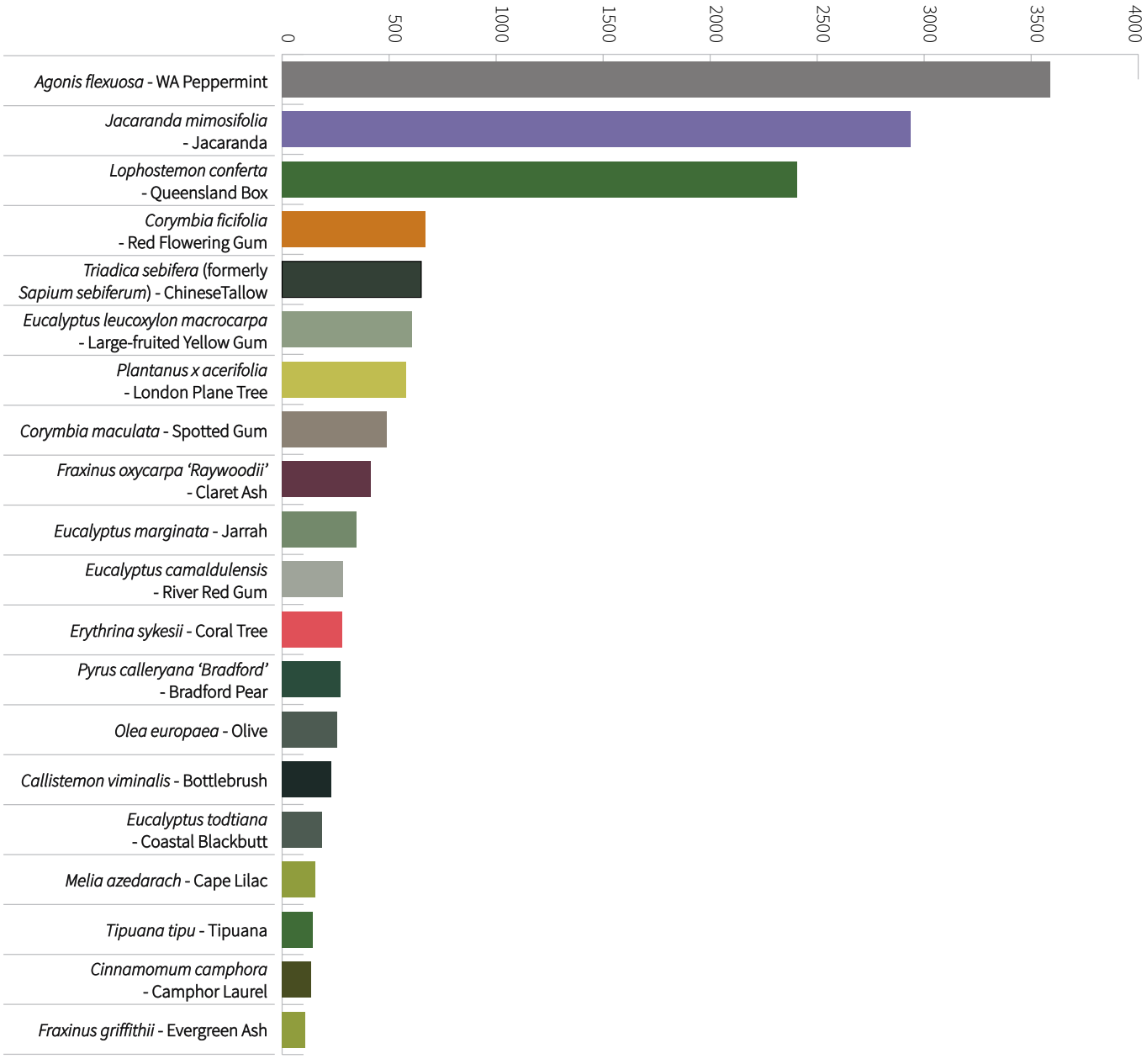


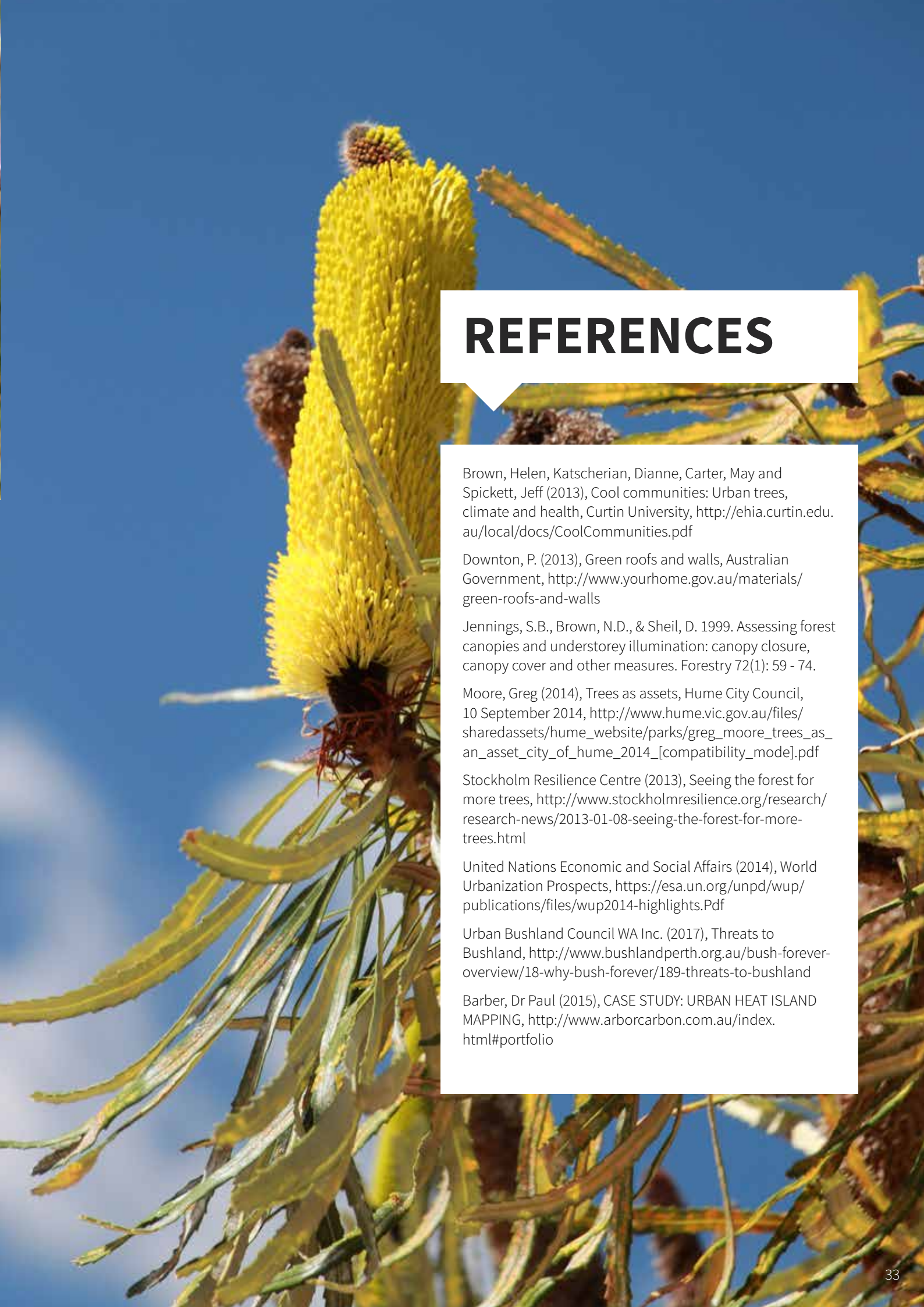
TREES FOR YOUR YARD

SMALL TREES - UP TO 10 METRES
Eucalyptus sp. utilis, forrestiana, todtiana, spathulata, erythronema, synandra, leucoxylon - Eucalyptus
Banksia sp. - Banksias
Cassia fistula - Golden rain
Callistemon sp. - Bottlebrushes
Citrus aurantifolia - Lime
Citrus latifolia - Tahitian lime
Crataegus laevigata - Pink flowering Hawthorn
Desmodium umbullatum area - Horse bush
Fraxinus grifithii - Evergreen ash
Hakea laurina - Pin cushion Hakea
Lagerstroemia indica - Crape myrtle
Melaleuca sp. - Paperbarks
Michelia figo - Port wine magnolia
Nyssa sylvatica 'Tupelo' - Chinese tupelo
Plumeria obtusa - Frangipani
Pyrus spp - Pears - Take you pick from Capital pears, Manchurian pears, Snow pears etc
Tabebuia chrysotricha - Golden Trumpet Tree
Triadica sebifera (formerly *Sapium sebiferum*) - Chinese Tallow
Peaches , Nectarines, Apricots, Plums, Cherries, Apples and more!

MEDIUM TREES - UP TO 15 METRES
Agonis flexuosa - Native Peppermint
Eucalyptus macranda - Coastal Moort
Corymbia ptychocarpa - Swamp bloodwood
Cupaniopsis anacardiodes - Tuckeroo
Caesalpinea ferrera - Leopard tree
Delonix regia - Royal Poinciana
Elaeocarpus eumundi - Eumondo quandong
Fraxinus oxycarpa 'Raywoodii' - Claret Ash
Gleditsia triacanthos - Honey Locust
Hymenosporum flavum - Native Frangipani
Jacaranda mimosafolia - Jacaranda
Mangifera indica - Mango
Michelia alba - Magnolia
Nauclea orientalis - Cheesewood or leichhardt's pine
Persea Americana - Avocado
Stenocarpus sinuatus - Wheel of fire
Tamarindus indica - Tamarind
Ulmus chinensis - Chinese Elm
Zelkova serrata - Japanese elm

TYPES OF STREET TREES IN THE CITY SOUTH PERTH





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