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The social, cultural and economic contribution of Kings Park and Bold Park Botanic Gardens and Parks Authority



Acknowledgement of Country

Deloitte is a national firm and we acknowledge the Traditional Custodians of the lands, waters, seas of this Country, and pay our respect to the Elders past and present.

For tens of thousands of years, the Whadjuk Noongar have cared for the lands currently managed by the Botanic Gardens and Parks Authority. For Traditional Custodians, the land has immeasurable value as a place of identity, language, nourishment, shelter, ceremony, trade and gathering.

We as a project team acknowledge this connection and recognise the deep wisdom that comes from an Aboriginal perspective on the value of our natural and cultural assets.



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Glossary



Term	Description		
Accession	A group of related plant material from a single species which is collected from a specific location.		
Economic contribution	Measures the value that an industry or organisation contributes to an economy in a given historical reference year. An economic contribution consists of value added and employment. Economic contributions include the direct economic contribution from the entity's operations and the indirect economic contribution from purchases made to local suppliers.		
Existence value	The value that people place on the existence of a good or service, which is measured through contingent valuation approaches including Willingness to Pay (WTP) studies.		
Ex-situ conservation	The conservation of plant species and their genetic diversity 'off-site' and away from t natural habitat.		
<i>In-situ</i> conservation	The conservation of plant species and their genetic diversity within their natural habitat.		
Social asset value	The value derived from people who use a good or service directly or value the good or service despite not directly using it. The social asset value for this study is the combination of the use value and existence value of a good or service for the local community over 30 years in present value terms.		
The value of benefits that accrue from actual use of a good or service. The notes to estimate the use value for this study is a travel cost methodology which is preference approach for quantifying use value.			
Value added	The measure of an industry's or organisation's economic contribution to gross domestic product (GDP) at the national level, or gross state product (GSP) at the state level. Value added includes the gross operating surplus (GOS) which measures the return to capital owners, and labour income.		





The social, cultural and economic contribution of Kings Park and **Bold Park**



In 2023, there were **5 million** visits to Kings Park & 340,000 visits to Bold Park



BGPA's social asset value is worth \$1.7 billion to the WA community over 30 years



29,000 hours at Kings Park and Bold Park

BGPA's Living Collection contains over **4,000** different WA species



Executive summary

Kings Park and Botanic Garden (Kings Park) and Bold Park are two iconic landmarks in Perth. Kings Park is known as 'Perth's green heart' while Bold Park has been coined the 'sanctuary by the sea', recognising the tranquillity and importance of having two such high-quality natural landscapes close to the city centre. The unique and native flora, numerous events and cultural programs attracted over 5.3 million visits to both parks in 2023. Both parks are managed by the Botanic Gardens and Parks Authority (BGPA), an organisation which also makes critical contributions to ecological and conservation research that has both intrinsic value and commercial applications.

The sites of Kings Park and Bold Park have been the land of the Whadjuk Noongar people for tens of thousands of years. The area provided a source of identity, language, nourishment, shelter, ceremony and trade. Both parks are marked with reminders of colonial relationships while also celebrating ongoing cultural connection of Traditional Custodians to Country.

BGPA actively promotes the Whadjuk Noongar connection to the Country through partnerships, events, engagement and outreach. Five Aboriginal businesses also operate in Kings Park, educating visitors about the importance of Country and Aboriginal knowledge of the land to build a greater appreciation for Aboriginal culture within Kings Park.

There is increasing recognition of the importance of both parks and the activities of BGPA for all WA residents. To develop a clear understanding of the worth and contribution of BGPA to Western Australia, this report explores its many sources of value: economic, social, cultural, scientific and ecological.

The analysis is informed by a bespoke Western Australian Citizen Survey, which was completed by 790 people to understand

how the parks are used and attitudes towards BGPA activities, alongside data provided by BGPA and numerous consultations with BGPA staff.

Economic and tourism contribution

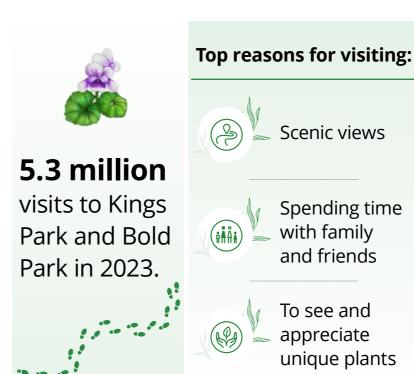
BGPA supports economic activity and employment in WA through its direct operations and the role Kings Park and Bold Park play in attracting visitors to Perth. The parks contribute to the variety of activities that attract visitors to Perth alongside Rottnest Island and Fremantle. The high-quality environment and accessibility of Kings Park means that half of international visitors and one in five interstate visitors to Perth visited Kings Park in 2023.

The role of the parks as a tourist destination and BGPA operations supported nearly \$50 million of economic activity in the Western Australian economy and 452 Full-Time Equivalent (FTE) roles in 2023. This economic activity and employment consisted of:

- Almost \$22 million in economic activity and 175 FTE roles from direct BGPA operations and activity supported indirectly through purchases from WA suppliers.
- Over \$27 million in economic activity and 277 FTE roles attributable from the 910,000 international and interstate visitors to Kings Park and Bold Park in 2023.

Social and cultural contribution

Kings Park and Bold Park are highly frequented by Western Australians. The Western Australian Citizen Survey reveals that nearly all (96%) of residents have visited Kings Park while just under half (48%) have visited Bold Park. Visitors are drawn to the parks for scenic views, spending time with family and friends and appreciating unique plants.



99

52% of international visitors to Perth go to Kings Park

23% of interstate visitors to Perth go to Kings Park

BGPA contributed

\$49 million

to the WA economy in 2023
through its operations and

attracting visitors to Perth

BGPA also plays an important social and cultural role, hosting numerous events, education programs and volunteering opportunities. Events like Everlasting Kings Park Festival attracted 269,000 people while over 47,100 people participated in school and community education programs that contribute to learning about native flora and cultural knowledge. Volunteers also donated 29,000 hours to help maintain BGPA land and provide guided walks to visitors.

Kings Park and Bold Park along with the activities of BGPA are a social asset for WA. Our Western Australian Citizen Survey was used to estimate these values for BGPA. Overall, the social asset value of BGPA is \$1.7 billion. This represents the present value of the use value and existence value over the next 30 years.

- The **use value** represents the value that Western Australians derive from the 4.3 million visits to Kings Park and Bold Park. The use value reflects visitors who are above 15 years of age.
- The existence value of BGPA is estimated through a contingent valuation method. It reflects the value citizens place on the natural assets and the environmental, scientific, cultural and educational activities undertaken by BGPA

BGPA has an important role in protecting and conserving biodiversity across the state, protecting bushland and maintaining green spaces were the most important factors influencing the existence value ascribed by WA residents responding to the survey.

When looking at the existence value on a per person basis, the results are comparable to the existence value estimated by NSW residents for three Botanic Gardens managed by the Botanic Gardens and Domain Trust (The Trust) and their research and conversation activities (\$9.00 per person for BGPA and \$8.05 for The Trust).

Scientific and ecological role

BGPA undertakes leading scientific research and conservation activities, which have both an intrinsic value and commercial applications. BGPA has collected over 4,000 different species in its Seed Bank collection, which covers a third of WA native flora. These seeds provide an insurance mechanism to protect native biodiversity within the state.

The Plant Breeding Program has produced over 80 new varieties since it began operations in the 2000s. The new cultivars are designed to be more resilient to hotter and drier climates and have more aesthetic features (like longer flowering periods). This has enabled BGPA to sell the Intellectual Property (IP) to several partners. BGPA expects revenue from these activities to reach \$900,000 per annum in the next decade.

The scientific research has the ability to improve the environmental impact of key industries. Long-term partnerships with the resources sector including Hanson Construction Materials in the South West and BHP in the Pilbara have established methods to improve and accelerate plant regeneration during mine site rehabilitation. The techniques have led to 80% of pre-mining species returning in certain sites.

The research also had an international reach, with BGPA providing advice to clients in Saudi Arabia to identify techniques to improve restoration of degraded desert areas.

BGPA has numerous sources of value that include the green space it provides for WA residents and visitors alike, alongside the important social, cultural, scientific and educational role. Investment in BGPA will be important to maintain and enhance the ability of the organisation to continue providing these services and growing the value it provides.



\$1.7 billion

in social asset value from BGPA over 30 years









165 events hosted



4,000 plant species in Seed Bank







34 refereed scientific publications on biodiversity conservation and ecosystem restoration





BGPA's social asset value of \$1.7 billion is generated from a range of sources



Economic

- Economic activity and employment from BGPA operations
- Purchases from supplying industries
- Property value uplift



Education

- Educational programs for adults and school/pre-school children
- Traineeships and apprenticeships
- Technical knowledge related to conservation and nature



Tourism

- Attracting interstate and international visitors
- Contributing to Perth's brand as a green and open city



Social

- Place for leisure and social connections
- Wellbeing and physical health



Environmental

- Promoting unique WA flora
- Protecting threatened species
- Championing resilient species



Scientific

- Enhancing biodiversity
- Ecosystem research

• Tertiary student education



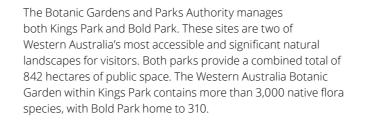
Cultural

- Key events such as Everlasting Kings Park Festival and Lightscape
- Promoting Aboriginal connection to Country





Introduction



BGPA undertakes scientific research, conservation research and facilitates educational programs. Over the 2022-2023 period, there were more than 26,000 education program attendees and more than 33 PhD, Masters and Honours students who participated in science programs.

In 2023, 532,599 people attended organised events hosted in Kings Park such as Lightscape and the Everlasting Kings Park Festival

For the Whadjuk Noongar people, these areas have provided a source of identity, language, nourishment, shelter, ceremony and trade for tens of thousands of years.

The sites represent both tranquility and trauma for the Whadjuk Noongar people. The parks are areas that represent the invasion of European settlers and the establishment of colonial structures that still characterise the relationship between Aboriginal and non-Aboriginal people. BGPA has sought to recognise this history and continuing connection to the land through educational programs and strengthening connections with local Aboriginal community members

This study was commissioned by BGPA to explore and estimate the economic and social contribution of both parks to the WA economy.

The research is informed by data provided by BGPA, numerous consultations with BGPA staff and a survey of 790 WA residents, providing insights on the use of sites as well as perceptions and attitudes towards the parks and BGPA activities. Further information about the survey is available in Appendix A.



Kings Park is internationally recognised and is one of the largest inner-city parks in the world. A rich cultural heritage site, it is estimated that there were over 5 million visits to Kings Park in 2023. This park offers a range of activities including bushland walk trails, gardens and children's play spaces. Kings Park also hosts the ANZAC Day Dawn Service at the State War Memorial which attracted 22,500 visitors to the park.

The **Western Australian Botanic Garden** is located within Kings Park. The Botanic Garden contains over 3,000 species of the state's unique flora.



Bold Park continues to be a popular destination for visitors engaging with the natural environment, with an estimated 340,000 visits in 2023.







01 Economic contribution

The economic contribution of BGPA operations supports \$21.8 million in economic activity, measured through value added, across the WA economy in 2023. BGPA operations also supported 175 Full-Time Equivalent (FTE) roles across the economy.

The economic activity and employment estimates include both the direct and indirect economic contributions of BGPA. The **direct economic contribution** is \$13.4 million and reflects both the returns to capital from state government funding and internal revenue sources, and returns to labour from the operations of the BGPA. There are 104 FTE roles supported by BGPA.

BGPA also supports flow-on economic activity associated with BGPA's purchases from WA suppliers. The sum of these purchases is called the **indirect economic contribution**. This includes the purchase of horticultural or scientific equipment, utilities and other services required for BGPA's operations. The total value of these purchases contributed a further \$8.4 million value added and supported 71 additional FTE roles across the WA economy in 2023.

This additional activity is driven by a 'Buy Local' policy for BGPA which helps to ensure economic activity remains within the state.

Large inner city parks like Kings Park and Bold Park also contribute to lifting property value. One study showed that for every 100 metres closer to a park, a house had a 5.4% increase in property value, within 500 metres.¹

Economic contribution studies are useful to estimate the economic activity and employment generated by BGPA's direct economic activity. However, the economic contribution is not the only source of value of BGPA to the economy and WA residents. BGPA manages assets of significant value to the state, which are valued at over \$64 million and include buildings, infrastructure such as monuments and memorials*. Moreover, these assets generate significant value for WA residents beyond their physical asset value – which is explored further in other sections of this report.

Further details around economic contribution studies are available in Appendix B.



Table 1: Economic contribution of BGPA, 2023

	Direct contribution	Indirect contribution	Total contribution
Returns to capital (millions)	\$0.7	\$3.4	\$4.1
Returns to labour (millions)	\$12.7	\$5.0	\$17.7
Total value added (millions)	\$13.4	\$8.4	\$21.8
Employment (FTEs)	104	71	175

Source: Deloitte Access Economics, BGPA data (2024).



^{*}Disclaimer: BGPA recognises that this value is likely an underestimate of asset value and is working to include a more comprehensive valuation of these assets.



Facilitated economic activity



In addition to the economic contribution of BGPA, a wide range of businesses operate in both Kings Park and Bold Park. These businesses either have leases or are licensed to provide food and beverages, tourism, recreation and cultural activities or services (Table 2). Some of these businesses operate seasonally such as picnic hamper businesses, wedding planners and temporary accommodation providers.

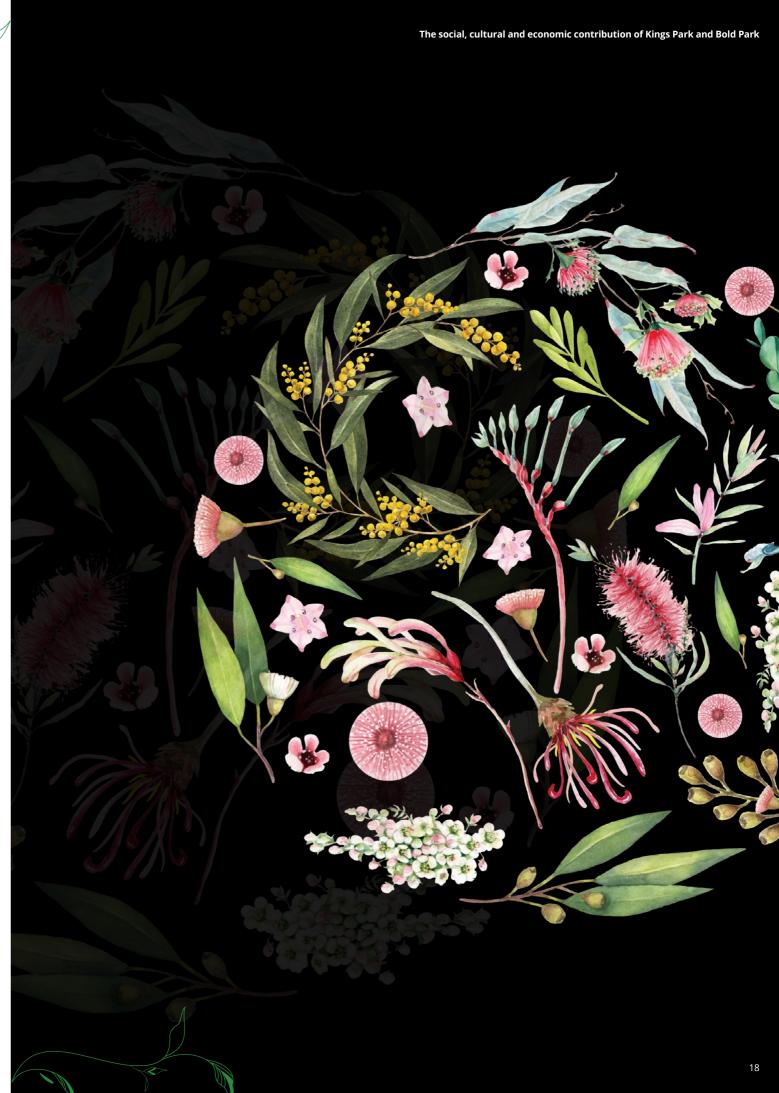
The economic activity of these businesses is not fully captured in the economic contribution, with only the licence and lease revenue paid to BGPA being reflected in the direct economic contribution. Yet the economic activity generated by these businesses is larger than these revenue items. For instance, the total revenue from summer concerts is approximately 16 times the value of the revenue received by BGPA from hosting these events.



Table 2: List of businesses that operate at Kings Park

Lease or license	Commercial operator	
	1. Fraser's Restaurant	
	2. Botanical Café	
Leases	3. Zamia Café	
	4. Koorak Café	
	5. Next Generation Gym	
	6. Perth Explorer Bus	
	7. Segway WA	
	8. Hike Collective	
	9. Go Go Active Tours	
Licences	10. Mindful in Nature – Forest Therapy	
Licerices	11. Spinway WA	
	12. Nyungar Tours	
	13. Go Cultural	
	14. Mellen Events	
	15. Moonlight Cinema	





02 Tourism contribution



Kings Park supports additional economic activity as a key attraction for visitors to Perth along with Rottnest Island, Fremantle and Elizabeth Quay. The high-quality views and natural landscape along with the proximity to central Perth results in Kings Park attracting a high share of international and interstate visitors compared to other attractions near Perth (as shown in Figure 2), specifically:

- 1 in 2 international visitors to Perth visit Kings Park; and
- 1 in 5 interstate visitors to Perth visit Kings Park.

Kings Park was awarded 'Australia's best of the best attraction' in the 2024 *Tripadvisor Travellers Choice Awards*, besting the Sydney Opera House. This award was given based on the near perfect five-star ratings provided by almost 12,500 reviews from visitors to the park.

There were nearly 910,000 interstate and international visits to Kings Park and Bold Park in 2023. For Kings Park, total interstate and international visitation has returned to pre-COVID levels. In 2023, \$37 million of expenditure from these tourists is attributable to BGPA.

As Kings Park and Bold Park are part of a collection of attractions within Perth, the tourism contribution reflects what is attributable to both parks within that collection. **The total tourism contribution attributable to Kings Park and Bold Park is \$27.2 million in 2023. Additionally, they supported 277 FTE roles across WA.**

Figure 1: Kings Park visitation in 2023



Source: Deloitte Access Economics, BGPA data.

For comparison, the economic and tourism contribution of Kings Park and Bold Park (\$49 million in total) is approximately half of the UNESCO world heritage listed Ningaloo Reef economic and tourism contribution (\$128 million) estimated in 2018-19 after adjusting for inflation.

The tourism contribution reflects the additional economic activity to the WA economy from expenditure from international and interstate visitors. The value derived from WA residents (who make up the majority of park visitation as shown in Figure 1), is reflected in the 'Benefits to Community' section or the report and the calculation of the total asset value of BGPA.

Further details around BGPA's tourism contribution are available in Appendix C.

Figure 2: Benchmarking Kings Park visitation in 2023

62% of international visitors to Perth visit Fremantle

41% of interstate visitors to Perth visit Fremantle

52% of international visitors to Perth visit Kings Park

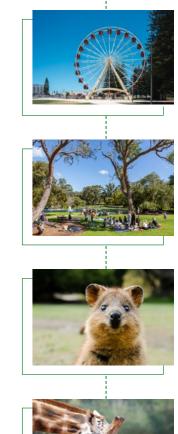
23% of interstate visitors to Perth visit Kings Park

28% of international visitors to Perth visit Rottnest

14% of interstate visitors to Perth visit Rottnest

27% of international visitors to Perth visit Perth Zoo

16% of interstate visitors to Perth visit Perth Zoo





Source: Deloitte Access Economics, Tourism Research Australia (2024), Perth Zoo visitation data (2023)



O3 Benefits to the Community



Kings Park and Bold Park play a vital social and cultural role to visitors and WA residents, being sites of important social and community activities. The parks also host activities to educate local residents and visitors of all ages about the natural environment, and to promote understanding of the natural cultural connections of the Whadjuk Noongar people to the land.

The numerous uses of both parks and their central location means they are used by most WA residents. The Western Australian Citizen Survey found that most (96%) WA residents have visited Kings Park in the past five years, while less than half (48%) have visited Bold Park.* Kings Park and Bold Park offer various attractions however the majority of visitors come primarily for the scenic views, for social outings, or to see and appreciate unique plants (Figure 3).

At Kings Park, visitors use a variety of facilities, with most using the cafés and kiosks. Visitors also frequently visit the Western Australian Botanic Garden which showcases over 3,000 unique and native plants, and the State War Memorial, especially on the ANZAC Day Dawn service (Figure 4).

The following pages detail the source of value that the WA community derive from Kings Park and Bold Park.

Figure 4: Highly used features in Kings Park

cafés and kiosks

75% visit

the Western

Botanic Garden

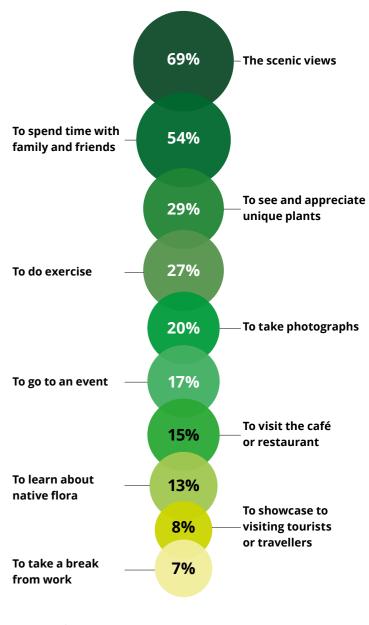
Australian

73% visit the State War Memorial

79% use the

Source: Deloitte Access Economics, Western Australian Citizen Survey (2024). Note: This includes visitors who have used the features at least once or use it frequently.

Figure 3: Most common reasons for visiting Kings Park and Bold Park (top three rank)



Source: Deloitte Access Economics, Western Australian Citizen Survey (2024).

^{*}Best efforts were taken to ensure the Western Australian Citizen Survey was representative of the WA population, yet survey selection bias for an online survey may overrepresent visitors.





Social value

Kings Park and Bold Park provide high quality green space for WA residents to enjoy nature and socialise. These parks directly contribute to the National Urban Policy objective of urban environments promoting health and wellbeing for communities through equitable access to green spaces.1

Public appreciation of **urban green spaces** has risen across the globe since COVID-19 lockdowns.² More broadly, urban green spaces have also been linked to improving quality of life, with some studies even associating time spent in green spaces with a reduction in complications caused by chronic diseases.³

Kings Park and Bold Park offer visitors a **place to connect** and socialise. Improved social connections have been linked to better physical health outcomes including improved life expectancy and life satisfaction.4 Kings Park and Bold Park help facilitate these social connections with a significant portion of visitors to Kings Park and Bold Park (61% and 46%, respectively), visiting to spend time with family and friends. Kings Park also hosts events that enable people to connect with others, discussed in further detail later in this report.

Both parks also give the community an active space where they can **prioritise their health**. Studies have shown that city residents report higher levels of physical activity when they have access to well-maintained green spaces. 5 Bold Park, in particular, is a popular location for exercise, with 40% of visitors ranking physical activity as one of their top reasons for visitation.





Figure 5: Top ranked reason for visiting Kings Park and Bold Park (top reason for visiting only)





19% of visitors come to the parks to spend time with family and friends



7% of visitors come to the parks to exercise

Source: Deloitte Access Economics, Western Australian Citizen Survey (2024).

Value of volunteering

There are a range of volunteering options for the local community and organisations in both Kings Park and Bold Park. Volunteering opportunities include assisting park visitors, providing guided tours, maintaining plaques and infrastructure, facilitating education and learning, and caring for gardens and bushland. Kings Park and Bold Park primarily offer regular, long-term positions with many volunteers staying in their role for decades. Short-term volunteer opportunities are also available for corporate groups and for specific events held in Kings Park. Numerous studies have cited the benefits of volunteering, for the individual, community and the organisation volunteered at.



Value created for the individual (volunteers)

A study of senior-aged volunteers showed that a sense of community belonging and purpose was a particular benefit of volunteering. This is particularly important for BGPA volunteer groups as they are comprised primarily of retirees, who are given the opportunity to stay active and spend time outdoors which improves their quality of life.6

Volunteers are also given plenty of learning opportunities to expand their knowledge and skill in horticultural activities with a group of likeminded people. Most volunteers tend to be longterm, working with the same group of people for years. This also provides an opportunity to socialise and build deeper connections with other members in the community.



"Being a Guide has opened up a whole new world to me. I learn so much and get to spend time in Kings Park which I love. I have made so many friends who share my interest in wildflowers, our unique native plants and in the history of this wonderful place. It is very rewarding."

- Georgie, Kings Park Guide



"There are people in their 90s who are active and vibrant and their connection to community helps to create a person who is happier."

- Inger Thompson, Volunteer Program Coordinator

Kings Park Guides



Kings Park Guides are a group of 140 volunteers, primarily retirees, who run the Visitor Information Centre and organise free, daily guided tours. In 2023 alone, Kings Park Guides conducted over 1,100 tours.

Kings Park Guides are very passionate about their work. In fact, on top of the 14 weeks of mandatory training, they go above and beyond to further educate themselves with monthly presentations and excursions. Inger Thompson, Volunteer Program Coordinator explained that "when visitors think they are interacting with staff, it's actually a volunteer" due to their professionalism and enthusiasm.









Value created for the community

There are several services at Kings Park and Bold Park which are run exclusively by volunteers for community members to enjoy. These include the native plant sales run by Friends of Kings Park and the guided walks led by volunteers. There are also independent volunteering groups which organise events and memorials at Kings Park (see Honour Avenues Group case study).



Value for BGPA

Organisations benefit from volunteer contributions.

One international study of volunteers for an environmental organisation found that for every \$1 spent training volunteers, the park receives \$25 worth of benefit from every hour volunteered.⁷

Volunteers form an integral part of BGPA's day-to-day operations, contributing 29,000 hours in 2023. Volunteers also enhance the existing assets offered by BGPA by helping maintain the parks. This includes assisting with gardening and weeding in the bushland and botanic garden. These volunteers are crucial and allow BGPA to "present the gardens in such a pristine way" (Inger Thompson, Volunteer Program Coordinator).

Honour Avenues Group



charge of maintaining almost 2,000 dedication plaques and organising dedication ceremonies.

Kings Park Perth has more honour avenues, memorials and statues than any other park in Australia. These important places of remembrance require significant upkeep every year to ensure that they receive the care and respect that they deserve. Volunteers are responsible for repainting and replacing damaged plaques.

These volunteers also maintain a public database which assists family members in locating the specific dedication plaques of loved ones. These plaques allow for families to honour loved ones who lost their lives defending the country.

Education

BGPA offers or hosts a range of educational programs centred around wellbeing, cultural heritage and eSTEM (Environmental STEM). Over 47,100 people attended these education programs – inclusive of both school and community sessions – in 2023.

Education programs are tailored to members of the community. The most popular educational programs run by BGPA are offered to school-aged children, teenagers and toddlers. They also provide programs for professional learning and training, corporate team building and cultural tours.

BGPA has collaborated with schools to provide over two dozen education programs at Kings Park which contribute to the state curriculum. Kings Park education allows students to learn in an immersive, hands-on environment surrounded by nature.

Some examples of these various programs are listed in the following case studies.



Wellbeing-centred programs

BGPA offers programs designed to challenge students through outdoor activities aimed at building nature based skills and resilience.

These programs include but are not limited to:

- Child vs Wild (Years 4-6)
- Outdoor Education (Years 7-12)
- Orienteering (Years 7-12)

Cultural heritage programs

BGPA organises various programs which teach students about the history of the Whadjuk Noongar lands and culture.

These programs include but are not limited to:

- Koora Koora Kaarta Koomba (Years 1-2)
- Noongar Boodja Six Seasons (Years 1-6)
- Aboriginal cultural experience (Years 7-12)

eSTEM programs

BGPA provides opportunities for students to develop their environmental literacy through hands on eSTEM programs.

These programs include but

• Brilliant Botanists (Years 3-4)

are not limited to:

- Bushland Carers (Years 7-12)
- Ecological Field Studies (Years 10-12)





Spotlighted educational programs

Zippy's Bush Kindy

Zippy's Bush Kindy is an environmental education program for kindergartenaged children facilitated either in Rio Tinto Naturescape Kings Park or Perth Hills Discovery Centre. This program runs as a 45-minute session over an eight-week term and is designed to educate and excite children about the environment and the importance of conservation.

Zippy's Bush Kindy encourages children to connect with nature through a bush experience, and empowers children to make discoveries about the natural environment, native plants and animals. A study showed that parents found children to be less dependent on manufactured toys and instead collected rocks and other natural materials for innovative play after being involved in a nature-play program.⁸

Over three years the program has expanded from 5 families to 500, with a post experience survey finding 90% of parents believe their connection to their child has improved.

The program's hands-on and play-based learning approach encourages confidence, self-esteem and problem solving, with 79% of children growing in confidence after participation.⁹





Noongar Boodja Six Seasons

The Noongar Boodja Six Seasons education program teaches students in years 1-6 about the six Noongar seasons. Throughout the four-hour program, members of the Aboriginal community share their cultural knowledge and customs.

This program aims to foster respect and appreciation through an immersion into Aboriginal culture. Each season is explored through a variety of handson activities which include learning of traditional bush medicine, food, hunting methods, art, dance and traditional games.

In 2023, almost all survey participants stated that the program promoted awareness and understanding of Noongar people and culture. 10





Ecological Field Studies

The Ecological Field Studies education programs allows students in years 10-12 to gain hands-on experience with *in-situ* conservation methods.

This program allows students to explore real-world applications of biological concepts studied in Biology ATAR Unit 1 and Biology General Unit 4 of their curriculum.

Through the 90-minute program, students are tasked with collecting data to compile a vegetation profile of the Banksia woodland. Students then use their compiled data to analyse abiotic and biotic factors shaping the ecosystem. The program provides students with an understanding of the biodiversity in WA and opportunities to conduct investigations using ecosystem surveying techniques.











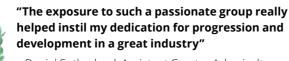
Traineeships and apprenticeships

BGPA offers both traineeships and apprenticeships for students aspiring to enter the horticultural, arboriculture or conservation industries. These programs are offered alongside existing TAFE programs and allow students to complement their studies with hands-on experience. Traineeships and apprenticeships last between 1-4 years, during which the students attend TAFE one day per week in conjunction with their employment. In the past two decades, there have been 90 people who have completed traineeships or apprenticeships.

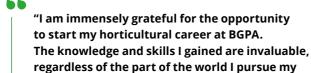
Trainees and apprentices benefit greatly from having hands-on experience in a practical industry. They also benefit from a paid work experience program which allows them to explore the industry, with some students organising employment interstate or overseas after the program.

Access to leading practitioners in the field make BGPA trainees and apprentices highly skilled, with well recognised experience. By the time they have completed the program, BGPA apprenticeships and trainees are skilled with highly valued experience. BGPA themselves also sometimes hire their own graduates if there is in an available role, with 20% of graduates working at BGPA after finishing their studies.

One in every five trainees are employed by BGPA after completing their traineeship.

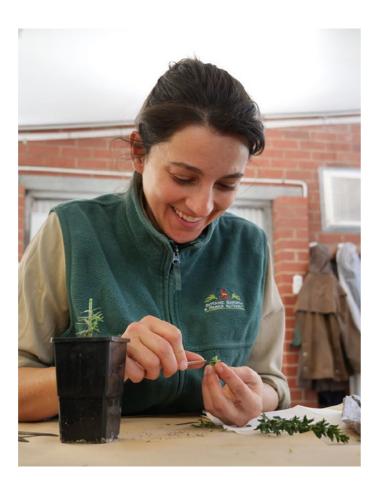


– Daniel Sutherland, Assistant Curator Arboriculture



career in horticulture"

– Fernanda Veraldo, Horticulturalist, BGPA Alumnus



Events

There are 165 events hosted at Kings Park each year. These events are popular, with over half a million attendees in 2023. The **most popular events are Everlasting Kings Park Festival and Lightscape**, which collectively attract over 400,000 visitors. Everlasting Kings Park Festival showcases thousands of wildflowers and local WA plant species, hosting multiple workshops, events and family activities. Lightscape is an international collaboration between BGPA and Sony that includes light and sound installations highlighting features within the Western Australian Botanic Garden.

These events attract visitors beyond the immediate, local community. In fact, one goal achieved by Lightscape was "to draw people in" (Luke Clynick, Manager Visitor Services) from further suburbs who may not frequently visit Kings Park. Events are also a key driver in bringing young adults to the park. With a well-developed brand in the community for expertise and knowledge around native WA flora, BGPA is also looking to partner and organise events targeting key issues such as biodiversity, climate resilience, and horticulture that will continue align strongly with its brand.







Everlasting Kings Park Festival

269,000 attendees

Lightscape

184,200 attendees

Summer events*

86,091 attendees*

Kings Park and Bold Park contributing to Perth's brand

Kings Park and Bold Park make important contribution to Perth's brand as open and vibrant city, with 88% of WA residents viewing the parks as iconic landmarks in Western Australia. Kings Park is a popular location used by media for interviews and advertisements. Kings Park provides an iconic vista on Perth's skyline, a key image often used in Perth's branding. Perth's skyline has even ranked in Architecture Digest's 'Top 17 Most Beautiful Skylines in the World', coming in at number 6.





^{*}Summer events include concerts and Moonlight Cinema events.

^{*}This number represents attendees in the 2023-24 period.



First Nations value

The Whadjuk Noongar people have lived on the land on which Kings Park is located for tens of thousands of years. To help understand the fundamental connection to this land for Whadjuk Noongar and other First Nations peoples, we have sought to engage with cultural leaders who have connection to this Country. Their reflections and stories are provided with their consent in this report. Their stories remind us that economic, social and cultural value is a product of history, present and future potential, and understanding the life-giving role of Country through a First Nations perspective is essential when assessing the value of BGPA.

We spoke with Carol Innes AM, Professor Stephen van Leeuwen, Walter McGuire and Meg McGuire for this research. Carol Innes is a proud Whadjuk woman and co-director of Danjoo Koorliny, an initiative focused on creating large scale, systems-change led by Aboriginal people to walk together with all Australians toward 2029 (200 years of colonisation in Perth) and beyond. Biennial Danjoo Koorliny events are held in Kings Park with 500-1,000 First Nations people coming together for storytelling and yarning. Professor van Leeuwen is a proud Wardandi Noongar man and board member of BGPA. Walter and Meg McGuire are a proud Indigenous couple, living and working on Whadjuk Country. Walter is a Whadjuk man and with Darwin-born wife, Meg descendent of the Kungarakan people of the Finniss River (N.T),

are co-founders of Go Cultural Aboriginal Tours and Experiences. Their company operates walking tours in Kings Park and other locations around Perth and Wadjemup (Rottnest Island) to educate people on Aboriginal culture and heritage.

The land on which Kings Park is located has a number of names, including Kaarta Koomba, Mooro Katta and Kaarta Gar-up, which demonstrate the importance and physical features of the land. Meg McGuire notes that "our language grows out of the land." One example is an area where the river level was low enough to cross, was named Matagarup, with "mata" (knee) representing the low water level.

The land of Kaarta Koomba was not only natural reserves but a source of nourishment, social gatherings, passages of life such as birth and cultural significance for Whadjuk Noongar over the millennia. The lookout point on Mooro Katta or Kaarta Gar-up (now called Mount Eliza) was an important vantage point where the Whadjuk Noongar people could scan the land for members of their community or outsiders and communicate through smoke signals. The natural springs that come up in the area of Kings Park were also used for birthing areas, while other areas were used for ceremonies, with signs carved into the old Scar Trees to indicate each area







One of Kings Park's iconic Scar Trees

Kings Park was also home to sacred limestone rocks believed to be Waugal eggs. These Waugal eggs are believed to be from the giant rainbow serpent responsible for creation of the Derbal Yerrigan (Swan River). For this reason, the Waugal eggs were considered sacred and used as a way for the Whadjuk Noongar people to connect to the land.



The Waugal

Kings Park is located at a prominent point along the Swan River, where the river meets the land. In Whadjuk Noongar stories, the creation of the Swan River involves the journey of the ancestral serpent Waugal, whose movements carved out the river's path and brought life-sustaining water to the land, enriching the lives of the Whadjuk Noongar people and shaping their connection to Country.

It is this convergence of water and land that is considered sacred and significant place in the Waugal's journey. It marks a point where the Waugal's movements shaped the land and created the river.



The cultural leaders spoken with had personal and familial connections with the different areas of Country.



"Some of my ancestors would have been born on the birthing sites in Kings Park. One of my earliest memories as a child was walking around Mooro Katta or Kaarta Gar-up with my mum as she sought respite from lively interactions during the WA Parliament's Aboriginal Tent Embassy protests and wondering what the hell was going on."

 Professor Stephen van Leeuwen, Wardandi Noongar, Board Member of BGPA These sites are both areas of tranquillity and a place of continuing trauma too, with stories of the Whadjuk Noongar Nation having suffering dispossession during colonisation along with other First Nations groups across Australia. The landscape was irrevocably altered through limestone mining and the removal of the Waugal eggs which led to protests at the Old Swan Brewery that Professor van Leeuwen mentions and a protracted court battle. The Derbal Yerrigan (Swan River) was dredged, disrupting the sediment and contaminating the once pristine waters which the Whadjuk Noongar people relied on for fishing.

The Whadjuk Noongar people were forcibly removed from the land or killed in a number of conflicts across the south west of the state, with the colonisers trying to sever their connection to their Country.

 31



Under colonisation, the Whadjuk Noongar people were unable to share their culture or even speak their language. They also endured slavery and forced family separation through the Stolen Generation.

There is increasing desire from the Noongar people to strengthen their connection and ability to determine the use of the lands of Kings Park and Bold Park. There are also calls from non-Aboriginal Australians for this, with the recognition that all Australians would benefit from this by contributing towards national healing.

BGPA are actively promoting Aboriginal history and continuing connection to the sites. There are five Aboriginal tourism operators that seek to educate visitors on this ongoing connection and build greater appreciation for Aboriginal culture, including Go Cultural. Go Cultural has seen success and growth over the years with Meg stating that "the world wants to see Indigenous Australia."

These tours are able to deepen visitors' understanding and respect for wisdom from the Traditional Custodians of the land and give the opportunity "to tell the first story". Aboriginal people still face discrimination and many obstacles in society. Through tours and other cultural immersion activities, participants in the consultation hope to challenge these negative stereotypes and false caricatures painted through cultural appropriation.

"Most histories or textbooks covering
First Nations peoples were not written by or for
Aboriginal Australians. Tours like ours allow us
to tell our own story in our own words."

Walter McGuire, Whadjuk Noongar,
 Founder of Go Cultural

"We have a vested interest in communicating messages which help build understanding of and benefit our community"

- Meg McGuire, Kungarakan, Founder of Go Cultural



Meg McGuire and Walter McGuire from GoCultural and Nyasha Maketo and Oliver Parry



Walter McGuire and Oliver Parry

BGPA also offers education programs with specific Aboriginal knowledge such as the Noongar Boodja Six seasons. Efforts to decolonise the landscape include using Whadjuk Noongar names in signage – such as Kaarta Gar-up and Mooro Katta instead of Mount Eliza – and commissioning Aboriginal art within both parks.

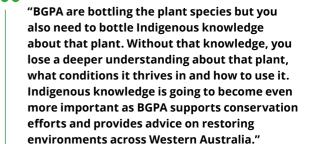
These activities extend to core conservation activities undertaken by BGPA with 13 Aboriginal seed collection programs across WA, including Kununurra, to ensure collections are taking place in accordance with cultural knowledge.

Carol Innes AM, believes there could be a closer partnership between BGPA's scientific research and Indigenous knowledge around the caring role Country provides to those living on it and the caring responsibilities we have towards that Country.

BGPA are looking to involve the Whadjuk Aboriginal Corporation in formal decision making for matters related to Kings Park and Bold Park to help ensure activities are considered appropriate by Traditional Custodians. Whadjuk representatives recommend the establishment of an Indigenous Knowledge Centre in Kings Park that could act as a head office for the Whadjuk Aboriginal Corporation and be located symbolically in one of the most iconic areas in Perth. This centre could provide guidance on the maintenance and use of Kings Park facilities, help coordinate and host Indigenous events and provide guidance for conservation management activities undertaken by BGPA.

This direction towards greater recognition and self-determination is consistent with a global trend toward recognising the importance of Indigenous knowledge to understand and improve the value of environmental assets and sustainability. Within Australia, Dr Diane Jarvis from James Cook University has sought to undertake research to assess whether First Nations knowledge could be reflected within or alongside Ecosystem Accounts developed under the United Nations System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA EA).

A recent World Bank report also highlights the contributions of Indigenous peoples to the sustainability of the planet despite numerous threats to their people, cultures and ways of life. The report provides a framework that seeks to enable greater use of Indigenous knowledge to improve sustainability practices.¹¹



Carol Innes AM, Whadjuk Noongar,
 Co-Director of Danjoo Koorliny





Social and cultural use value

The value of Kings Park and Bold Park extends beyond what can be captured simply through an economic contribution lens. The 'social value' of these parks is underpinned by their role in maintaining green spaces, biodiversity, and connection to Country, as well as providing opportunities for social connection.

Though these values cannot be captured using traditional market-based analysis, non-market approaches can be used to estimate the social value of these assets to the community.

Typically, this includes:

- **Use value**, which represents the value people derive from visiting the parks, and
- **Existence value**, which reflects the value derived from the continued existence of the parks, even if they have no intent to visit them in the future.

Value estimated using this approach is inherently different to the economic contribution modelled through this analysis, which reflects the impact of BGPA operations on the WA State Accounts. This is therefore a broader measure of value and is not additive to BGPA's economic or tourism contribution.

Figure 6: Factors contributing to social and cultural value

Individuals may value the parks as a place to improve their wellbeing, stay active and engage with the family, friends and community.

Local businesses may value the parks as venues for events.

Communities may value BGPA's contribution to the preservation and celebration of culture.

Schools may value the parks' programs which contribute to a well-rounded education curriculum for students. The Western Australian Citizen Survey has been used to estimate the use and existence value of Kings Park and Bold Park to the WA community. As access to both parks is free, use value is estimated using a 'travel cost' methodology. This method is based on the principle that travelling to a site involves costs other than a formal entry fee – and visitors must value their experience of the visit at least as much as the time and cost they incur to get there and back.

Using this approach, the use value of Kings Park and Bold Park is estimated to be \$67 million each year. This reflects 4.3 million visits each year from WA residents above 15 years of age. 95% of the use value is attributable to Kings Park, which accounts for the vast majority of visits to BGPA-managed sites.

Details on the use value methodology are available in Appendix D.

4.3 million visits
to Kings Park and
Bold Park from WA
residents derive
\$67 million in social
value each year

Social and cultural existence value



Existence value

The existence value reflects the value people place on the various scientific, cultural and educational activities BGPA undertakes as well as the management of both Kings Park and Bold Park. This research finds the existence value for BGPA undertaking these activities is over \$20 million based on the Western Australian population over 15 years old.

This reflects an individual existence value of \$9 per person, which is similar to other surveys of this nature, including in NSW for the Botanic Gardens and Domain Trust, which estimated the existence value of three botanical gardens at approximately \$8.05 per person.¹²

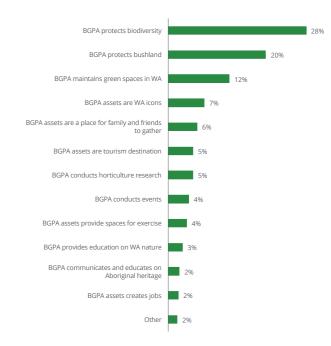
Chart 1 shows the factors driving these results, showing the most important contributor to the existence value of BGPA assets is their role in protecting biodiversity, followed by protecting bushland, and maintaining green spaces.

While other factors are less commonly cited by WA residents as contributing to existence value, they can be still be powerful contributors to value, with 88% of Western Australians perceiving Kings Park and Bold Park as iconic WA landmarks.

Details on the existence value methodology are available in Appendix D.



Chart 1: Top factors contributing to existence value



Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).





Total asset value

The combined use value and existence value **suggests the total social and cultural value of BGPA is worth \$88.4 million annually**. This reflects the underlying social and cultural value from visitors to both Kings Park and Bold Park, as well as the value WA residents derive from the option of visiting the parks and the scientific, environmental and educational activities conducted by BGPA.

This annual value can be extrapolated to consider the total asset value of approximately **\$1.7 billion to the WA community over a 30-year period**. This is driven by the use value of BGPA which makes up approximately 77% of the total asset value.

Appendix E provides further detail on methodology used to estimate the social asset value of BGPA.

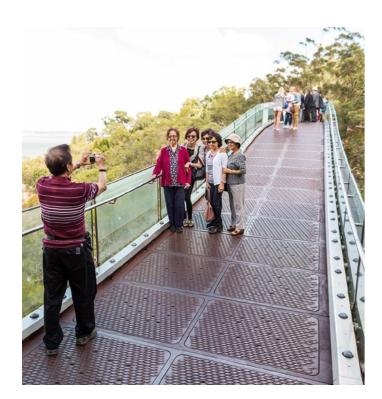
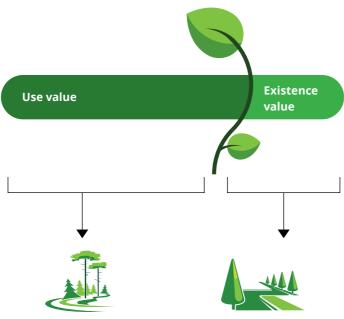


Figure 7: Total social asset value of the parks



\$1.3 billion of value generated for WA residents from enjoying the green spaces and activities provided by BGPA assets

\$395 million of value generated for WA residents from BGPA continuing to maintain and protect its assets over the next 30 years

Kings Park and Bold Park are worth \$1.7 billion to the WA community.



04 Scientific contribution



Science is a core function of WA Botanic Garden. The scientific functions of Kings Park are well recognised by 63% of the WA community. Kings Park Science plays a critical role in providing applied scientific research that supports world leading practice for the conservation and restoration of biodiversity. Biodiversity is essential to the health of the planet and also has profound economic implications. Changes to, or loss of biodiversity has impacts on human health, agribusiness, tourism and natural resources. Environmental sustainability is also an important influence on consumer and shareholder demand.

The economic value of scientific research is difficult to quantify as most research benefits are indirect, supporting sustainable development across various sectors including environmental protection. BGPA's research findings are therefore not currently captured in the overall economic contribution to the state, despite these outcomes producing numerous environmental and commercial benefits.



Academia

Kings Park Science has developed significant partnerships with the global academic community. Locally, BGPA supports the next generation of conservation scientists by operating a teaching hospital model. In 2023, Kings Park Science supervised 34 Higher Degree students, and 6 students through a Summer Scholarship program. To date, Kings Park Science has now supported over 130 students pursuing careers in biodiversity conservation since 2005.

In 2023, \$2.1 million worth of partnerships with the Australian tertiary sector was leveraged through federal and international funding schemes supporting applied research underpinning biodiversity conservation and restoration (see ecological mining rehabilitation case study).



Industry partnerships

In 2023, Kings Park Science partnered with industry across 16 projects valued at \$750,000. These projects supported sustainable activities across the mining and agriculture sectors as well as supporting conservation decision making for biodiversity. Kings Park Science also had 26 collaborative projects between university and industry in 2023. Some industry partnerships have been in place for 30 years, providing a foundation to support broader sector knowledge requirements.

Although it is difficult to directly quantify the benefits of research conducted by Kings Park Science, the examples evidence the significant benefits that can be attributed to scientific research.





The return on scientific research has been quantified in recent studies across research, particularly conservation research spaces.

- CSIRO found that every dollar of research and development investment generates an average of \$3.50 in economywide benefits for Australia.¹
- One study found public expenditure on agricultural research estimated a 45% social rate of return per year.²
- The 2023 ARC annual report estimates a return of \$3.32 in additional economic output per \$1.00 of funding.³







Case study

Plant breeding program

BGPA's plant breeding program focuses on producing varieties which are more resilient to the changing climate. The breeding program at Kings Park is the only ornamental breeding program which is centred around providing positive environmental outcomes.

Since its inception in the 2000s, the plant breeding program has produced over **80 new plant varieties**. These varieties include:

- Anigozanthos (kangaroo paws);
- Chamelaucium (waxflowers);
- Boronia;
- Grevillea; and
- Eremophila.

These varieties are more resilient to hotter, drier climates and have more aesthetic appeal (e.g. brighter colours, longer flowering periods).

BGPA offers these varieties as intellectual property to several partners who part-fund the plant breeding program such as Helix Australia, Ramm Botanicals, Benara Nurseries and Star Roses and Plants (USA).

These partners manage the commercialisation of varieties and collect a royalty fee per sale. This provides a unique, self-sustaining source of funding for BGPA. In fact, BGPA staff are not aware of another botanic garden using this innovative funding model.

The future royalties will contribute significantly to BGPA's generated revenue, which will be reinvested into *ex-situ* conservation programs and continued development of new hybrids. BGPA estimates that royalty revenue will grow significantly in the next decade, driven by growth in demand for Waxflower hybrids in Australia, South Africa, Israel, Peru and Europe, Kangaroo Paw hybrids in Australia, Europe, Japan and the USA, and Grevillea hybrids in Australia, the USA and Europe.

Anigozanthos 'Masquerade'

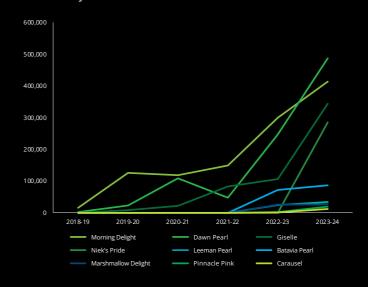
The BGPA plant breeding program developed the first blue Kangaroo Paw.

Considering only 10% of the world's flowers are blue, this makes 'Masquerade' highly sought after and presents a global market opportunity for Australia.⁵

'Masquerade' is also bred to be more resilient to a warmer global climate and benefits from a prolific flowering period.



Chart 2: Global BGPA waxflower cut flower sales volume to June 2024



Source: Deloitte Access Economics, BGPA data (2024)

Chart 2 shows the global sales of waxflowers as cut flowers to date and reflects the growing demand for Kings Park genetics. The future business growth model includes Israeli growers who currently grow 50% of global cut waxflowers.

BGPA expects that *Anigozanthos* will follow a similar growth trajectory and provide significant long-term, sustainable revenue whilst delivering a range of resilient plants.









05 Ecological value



BGPA plays a critical role in undertaking both *ex-situ* and *in-situ* conservation activities. BGPA also encourages WA residents to create wildlife-friendly and resilient gardens by providing resources and guidance on sustainable gardening practices.



WA Seed Bank and Living Specimen Collection

Kings Park Science undertakes *ex-situ* conservation through seed bank and living specimen collections. BGPA has secured over 4,000 different seed species (14,000 accessions) covering approximately one third of WA native flora since 1961.



Advocacy and leadership

BGPA also plays a crucial role in shaping local conservation efforts by encouraging the community to plant native species. Western Australia Botanic Gardens alone showcases 3,000 native species to the public with numerous informational plaques. Alongside these displays, Kings Park and Bold Park volunteers offer guided walks to learn more about native flora.

BGPA also promotes native species through their 'Kings Park Favourites' list which spotlight several native species. These plant species are also made widely available to the public through quarterly native plant sales organised by Friends of Kings Park.



"Seed collections safeguard against extinction in the wild, support future on-ground conservation, restoration and reintroduction of plants, and provide an immense resource for [research]"

- Australian National Botanic Gardens



Bushland restoration

BGPA leads the *in-situ* conservation of Kings Park and Bold Park bushlands. In both parks, BGPA organises restoration projects: with over 80 restoration sites in Kings Park and restoration activities covering 442 hectares in Bold Park.

Working with associated volunteer groups (e.g. Kings Park Bushland Carers and Bushland Restoration Group), BGPA ensures that these areas flourish through planting, weeding and monitoring activities.

Remnant bushlands are important refuges for native biological diversity with Kings Park and Bold Park protecting approximately 460 native plant species, 650 native fungi species and thousands of native fauna species. By improving the condition of the bushlands, they will become better refuges and ecological linkages for biodiversity, while also helping to restore people's relationship with nature and guaranteeing the enjoyment of these special places by future generations.

Benefits of growing native species include:

- Improves urban biodiversity and provides habitat for local insects and native birds.
- Increased resilience and less reliance on fertilisers.
 This allows residents to reduce associated risks of soil degradation and water pollution.
- Thriving in local weather conditions, particularly being water-wise and drought tolerant.





Kings Park and Bold Park also provide a range of ecological benefits to the greater Perth area. Urban green spaces create numerous positive impacts such as carbon emission absorption, improved air quality and urban cooling. As large parks covering 842 hectares filled with native flora, Kings Park and Bold Park also provide habitats for local wildlife. This is particularly important for bird species such as the Kaarakin (black cockatoos) which are endangered due to habitat loss and dwindling food sources.⁴



Carbon emission absorption

Flora in Kings Park and Bold Park reduce carbon emissions by absorbing carbon dioxide (CO₂), with trees capturing up to 0.61 kg of carbon per m² of tree canopy over a decade.⁵ Reducing carbon emissions is a key target for the local and national government with the WA Government committing to achieve net zero emissions by 2050.⁶ Therefore, Kings Park and Bold Park play a significant role in combatting climate change and supporting government, greenhouse gas (GHG) emission targets.



Air quality

By absorbing carbon emissions and other pollutants, Kings Park and Bold Park also contribute to cleaner air, improving the health of Perth residents. Studies note increased concentrations of GHGs warm the planet, causing temperature variability, increased aero-allegens and air pollution, all of which contribute to respiratory health issues. Therefore, urban parks play a significant role in mitigating pollutant-related diseases. The positive impact on air quality is particularly important in Perth as it mitigates the adverse effects of vehicle emissions and bushfire smoke.



Urban cooling

The canopy cover in Kings Park and Bold Park provides shade and cools the air creating considerable health, economic and environmental benefits. Hotter ambient temperatures are associated with increased health concerns, with heat related mortality for people aged over 65 years increasing by approximately 85% between 2000-2004 and 2017-2021.9 Hotter temperatures are also linked with both an increase in energy consumption used to help cool buildings with air conditioning units or fans, and a corresponding increase in GHG emissions.

Urban cooling is becoming increasingly important for Perth, with Perth's summer temperatures increasing. Since 1910, Perth's average summer temperature recorded at Perth airport has risen by approximately 3 degrees Celsius, which is significantly higher than the national average. By mitigating extreme heat, BGPA parks, alongside other green infrastructure and natural features of Perth, contribute to making Perth more liveable and more sustainable in energy use.



Biodiversity and Ecosystem conservation

Kings Park and Bold Park are crucial in conserving native flora and providing habitat to local fauna. The Western Australian Botanic Garden displays over 3,000 species unique to WA. Kings Park and Bold Park provide rich and resilient habitats which sustain local populations (e.g. brush-tailed possum) and migratory species (e.g. rainbow bee-eaters) alike.

Based on a study of Greater Sydney, it is estimated that an additional 10% of tree canopy cover in urban areas reduces temperatures by up to 1.13°C.8





Case study

Ecological rehabilitation after mining

The resources sector makes a sizeable contribution to the WA economy, contributing 47% of the WA economy in 2022-23.¹ Yet mining practices may detrimentally impact the environment by directly disturbing flora, fauna and soils within mining footprints, resulting in a biodiversity deficit. Kings Park Science research programs identify and address knowledge gaps needed to reduce these impacts and improve the environmental sustainability of the resource sector.

Over the past 30 years Kings Park Science has partnered with mining companies across most commodities and all WA regions.

Kings Park's longest continuous partnership (since 1995) with Hanson Construction Materials has delivered best practice restoration outcomes for Banksia Woodland communities after mining. By combining Kings Park Science's research programs and Hanson Construction Materials' restoration practitioner knowledge, this partnership has set a new standard for biodiversity return after mining that is now being recognised as seminal work, not only in WA but internationally, to guide regulation and practice of other mining operations. Kings Park Science and Hanson received a Golden Gecko Award for the restoration guide for the banksia woodland communities.

The Pilbara is the economic powerhouse of the state with large scale impacts on biodiversity. **Significant advancements** have been made in biodiversity rehabilitation outcomes for the Pilbara, which is the direct result of long-term engagement of Kings Park with iron ore practitioners including BHP and Rio Tinto.

A 15-year partnership with BHP has seen the delivery of four significant research programs including:

- The publishing of the Pilbara Seed Atlas and Field Guide in 2016 that supports seed collection, storage and treatment for use in rehabilitation.
- The \$5 million Restoration Seedbank Project focused on returning plant biodiversity via seeds to mine waste substrates and landforms
- The Global Innovation Linkages Program that partnered local and international researchers with the mining industry to focus on scaling seed technologies and designing mechanised seed treatment and delivery systems.

Although Kings Park Science has formed long-term partnerships with industry to develop these solutions, it has faced challenges to identify pathways to commercialisation and encourage wider adoptionofnewdirectseedingtechnologies. National partnerships like those through CRC TIME are pertinent for the continual development and outreach of these technologies given the level of mining activity and the scale of ecological rehabilitation requirements in WA.







06

Outlook for Kings Park and Bold Park





Expected growth in visitation

Kings Park and Bold Park are iconic landmarks for Perth which will continue to attract high visitation of WA residents and visitors to the city. International and interstate visitation in particular is expected to increase as tourism to Perth and WA continues to grow in size and importance. Scenic views, spending time with family and friends and appreciating unique plants are the most common reasons driving visitation, suggesting that maintaining or upgrading these features and required amenities will help drive additional visitation. Investments of this nature will be required to support state government priorities to facilitate additional tourism to Western Australia.



Protection and maintenance of existing assets

With an expected rise in visitation, BGPA needs to ensure all park amenities and assets are well-maintained. In particular, highly popular Kings Park features such as the State War Memorial and assets within the Western Australian Botanic Garden have been targeted by vandalism and graffiti.

Visitors currently enjoy the high quality condition of both parks, with one survey fielded by BGPA finding that 98% of visitors believe that high standards of presentation of Kings Park are important.¹ Safety greatly impacts visitation, with 97% of visitors stating the importance of Kings Park as a safe place for the community.² To ensure this standard is kept and the community can continue visiting Kings Park, better security is needed, particularly during the evenings. In addition, reinvestment in ageing assets and infrastructure that support the presentation of high quality conditions will be required on an ongoing basis.



Expansion of BGPA activities

BGPA's education programs – particularly those aimed at preschool or school aged children – have been growing strongly. The increased importance on early childhood education has driven interest in more rounded education programs promoting themes of environment sustainability, wellbeing and culture. BGPA is therefore looking to expand it's education programs to attract a wider demographic and expand its reach in the community.



Growing importance of conservation efforts

BGPA's continued efforts in WA conservation are expected to become increasingly important with the impact of climate change growing each year.

BGPA has played a pivotal role in WA conservation, organising numerous seed collections across the state. These seed collections act as a safeguard to many ecological threats. However, seed collections' value is limited by the sample of seeds collected and the year of collection. Multiple collections for a single species need to be taken to ensure genetic biodiversity. In addition, seed collections have expiry dates and therefore need to be recollected after one to two decades.

BGPA's plant nursery also contributes significantly to WA conservation, however, is still limited as some species can only survive in their local climates (outside of Perth). These drawbacks of *ex-situ* conservation highlight the need for *in-situ* conservation through the regionalisation of activities associated with BGPA.



The future of research

BGPA undertakes crucial research which has commercial value and environmental value. This research is funded through collaborations with industry, universities and the government. A more fiscally constrained environment means these funding sources are becoming more difficult to secure, particularly from public sector sources. Therefore, BGPA's leadership in WA conservation research will depend on the sustainability of funding received, likely from the private sector.





Appendices



Appendix A: Western Australian Citizen Survey

Deloitte Access Economics conducted a survey of 790 WA residents to better understand the use of Kings Park and Botanic Garden and Bold Park. This Western Australian Citizen Survey was also used to understand the social attitudes towards BGPA activities and green spaces.

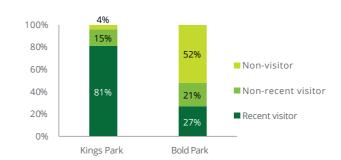
This survey canvassed WA residents including:

- Residents who have visited Kings Park or Bold Park recently (in the past five years).
- Residents who have visited Kings Park or Bold Park before but not recently (over five years ago).
- Residents who have never visited one or either of the parks.

Best efforts were taken by the survey provider to ensure the sample was representative in age, gender, metropolitan and regional location compared to the broader Western Australian population.

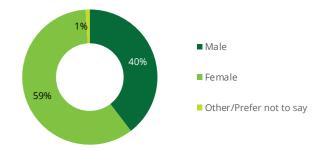
Survey respondents' visitation to the parks is shown in Chart A.1. The demographic profiles of survey respondents including gender (Chart A.2), age (Chart A.3), and residence location (Chart A.4) are summarised below.

Chart A.1: Visitation of survey respondents



Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).

Chart A.2: Gender of survey respondents



Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).

Chart A.3: Age of survey respondents

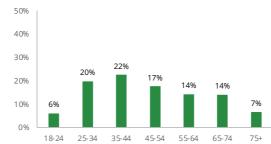
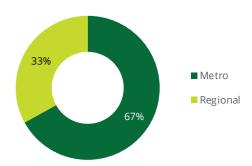


Chart A.4: Metropolitan or regional residence



Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).







Appendix B: Economic contribution modelling

Economic contribution studies are intended to quantify measures such as value added, exports, imports and employment associated with a given industry or firm, in a historical reference year. The economic contribution is a measure of the value of production by a firm or industry.



B.1. Value added

Value added is the most appropriate measure of an industry's economic contribution to gross domestic product (GDP) at the national level, or gross state product (GSP) at the state level.

Other measures, such as total revenue or total exports, may be easier to estimate than value added, but they 'double count'. That is, they overstate the contribution of a company to economic activity because they include, for example, the value added by external firms supplying inputs or the value added by other industries. Value added is the sum of:

- **Gross operating surplus** (GOS), which represents the value of income generated by the entity's direct capital inputs, generally measured as earnings before interest, tax, depreciation and amortisation (EBITDA).
- Labour income, which represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.
- Tax on production less subsidy provided for production, which generally includes company taxes and taxes on employment (given the returns to capital before tax (EBITDA) are calculated, company tax is not included or this would double count that tax). Gross output measures the total value of the goods and services supplied by the entity. This is a broader measure than value added because it is an addition to the value added generated by the entity. It also includes the value of intermediate inputs used by the entity that flow from value added generated by other entities.
- **Employment** is a fundamentally different measure of activity to those above. It measures the number of workers that are employed by the entity, rather than the value of the workers' output.



B.2. Measuring the economic contribution

There are several commonly used measures of economic activity, each of which describes a different aspect of an industry's economic contribution.

Value added measures the value of output (i.e. goods and services) generated by the entity's factors of production (i.e. labour and capital), as measured in the income to those factors of production. The sum of value added across all entities in the economy equals GDP. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare.

Figure B.1 shows the accounting framework used to evaluate economic activity, along with the components that make up gross output. Gross output is the sum of value added and the value of intermediate inputs. Value added can be calculated directly by summing the payments to the primary factors of production, labour (i.e. salaries) and capital (i.e. gross operating surplus), as well as production taxes less subsidies. The value of intermediate inputs can also be calculated directly by summing up expenses related to non-primary factor inputs.

Figure B.1: Economic activity accounting framework



Source: Deloitte Access Economics.



B.3. Direct and indirect contributions

Direct economic contribution is a representation of the flow from labour and capital within the sector of the economy in question. Indirect contribution is a measure of the demand for goods and services produced in other sectors as a result of demand generated by the sector in question.

Estimation of the indirect economic contribution is undertaken in an input-output (IO) framework using Australian Bureau of Statistics input-output tables, which report the inputs and outputs of specific sectors of the economy. The total economic contribution to the economy is the sum of the direct and indirect economic contributions.



B.3. Data sources

The financial data used to estimate the economic contribution of BGPA was sourced from BGPA for calendar year 2023. The information received from BGPA was assumed to be accurate. For the purposes of this study, the economic contribution was estimated for the Western Australian economy.



B.4. Limitations of economic contribution studies

While describing the geographic origin of production inputs may be a guide to a firm's linkages with the local economy, it should be recognised that these are the type of normal industry linkages that characterise all economic activities.

Unless there is significant unused capacity in the economy (such as unemployed labour) there is only a weak relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community.

Indeed, the use of labour and capital by demand created from the industry comes at an opportunity cost as it may reduce the amount of resources available to spend on other economic activities. This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission in the context of Australia's gambling industries:

"Value added, trade and job creation arguments need to be considered in the context of the economy as a whole ... income from trade uses real resources, which could have been employed to generate benefits elsewhere. These arguments do not mean that jobs, trade and activity are unimportant in an economy. To the contrary they are critical to people's well-being. However, any particular industry's contribution to these benefits is much smaller than might at first be thought, because substitute industries could produce similar, though not equal gains."

In a fundamental sense, economic contribution studies are simply historical accounting exercises. No 'what-if', or counterfactual inferences — such as 'what would happen to living standards if the firm disappeared?' — should be drawn from them.

The analysis relies on a national input-output table modelling framework and there are some limitations to this modelling framework. The analysis assumes that goods and services provided to the sector are produced by factors of production that are located completely within the state or region defined and that income flows do not leak to other states.

The IO framework and the derivation of the multipliers also assume that the relevant economic activity takes place within an unconstrained environment. That is, an increase in economic activity in one area of the economy does not increase prices and subsequently crowd out economic activity in another area of the economy. As a result, the modelled total and indirect contribution can be regarded as an upper-bound estimate of the contribution made by the supply of intermediate inputs.

Similarly, the IO framework does not account for further flow-on benefits as captured in a more dynamic modelling environment like a Computable General Equilibrium model.





Appendix C: Tourism contribution

Tourism contribution studies are intended to quantify measures such as value added and employment that results from tourism consumption. The tourism contribution framework is based on the Tourism Satellite Account (TSA) framework, an international approach to defining the tourism sector and related industries depending on the extent to which they interact with tourists directly or indirectly.



C.1. Measures of tourism activity

There are two measures of tourism activity presented in this report:

- Visitor expenditure is a measure of the aggregate price of goods paid by the consumer or a reflection of the price impact on visitors. It includes components that are not directly related to the industries producing the goods and services for tourism purposes, including imports, product taxes, and wholesale margins. It is necessary to adjust for these non-industry components of supply.
- Value added is the most appropriate measure of economic contribution as it ensures no 'double counting' of components of spend that should be allocated to other industries. For example, taxes on products (such as the goods and services tax) are recognised as a component of the Government services industry, while wholesale margins should be allocated to the economic activity associated with the wholesale trade industry.



C.2. Tourism Satellite Account Framework

This analysis uses the TSA approach to measuring the economic contribution from tourism expenditure. The TSA framework is conceptually similar to and draws on the ABS IO tables to generate results. It is based on an international approach to defining the tourism sector and different tourism products and related industries depending on the extent to which they interact with tourists either directly or indirectly.



C.3. Direct contribution of tourism

A direct contribution occurs where there is a direct relationship, both physical and economic, between the visitor and the producer of the good or service. Direct tourism output is essentially the amount of tourism consumption less net product taxes, wholesale and transport margins and imports.

In the case of retail goods purchased by visitors, only the retail margin contributes to direct tourism output, value added and Gross Regional Product. This is because it is deemed that only the retailer has a direct relationship with the visitor and is therefore part of the tourism industry. As a consequence, the output, and consequently value added, attributed to other (than retail) industries is excluded from the value of direct tourism output. Direct tourism output is therefore equal to internal tourism consumption at basic prices less the cost to retailers of domestic goods sold directly to visitors.

Direct tourism gross value-added shows only the 'value' which a producer adds to the raw material goods and services it purchases in the process of producing its own output. Direct tourism gross value added is measured as the value of the output of tourism products by industries in a direct relationship with visitors less the value of the inputs used in producing these tourism products.



C.4. Indirect contribution of tourism

The indirect effect of tourism consumption is a broad notion that covers upstream and supplier effects of tourism demand. Intermediate inputs represent those goods and services which support the supply of the tourism product – the cleaning services that are inputted to the hotel sector; the fuel that is inputted to the aviation industry; the fruit and vegetables that are inputted to the restaurant industry. Together with any upstream impacts, it is these flow-on effects which determine the tourism industry's indirect contribution.

The definition of direct and indirect are slightly different in the TSA approach as direct is defined as activity involving a direct interaction with tourists. Accordingly, the ratio of direct and indirect activity differs from results using a standard IO approach. However, estimates of total value added and employment should be similar across the two approaches.



C.5. Visitation data

BGPA provided a breakdown of 2023 visitation in Kings Park and Bold Park by tourist type. This accounted for 432,720 interstate and **476,907 international visits** to Kings Park and Bold Park in 2023. **Intrastate visits are excluded from the tourism contribution analysis**. This is because these visits do not represent net additional expenditure in WA, but rather a reallocation of expenditure within the state.



C.6. Estimating visitor expenditure

The National Visitor Survey (**NVS**), International Visitor Survey (**IVS**) and Regional Expenditure Survey (**REX**) was used to determine the average spending patterns of international and interstate tourists to Perth. To account only for expenditure incurred in WA, domestic flights and long distance travel expenses were removed from interstate expenditure. Therefore the interstate expenditure value differs from those published by WA Tourism. While other expenditure categories may include expenses incurred outside of WA, this is difficult to discern in the TRA data and therefore they remain included in the estimate.

On average, it was estimated that tourists travelling for leisure purposes (i.e., holiday, visiting family and friends) **spend \$72 and \$203 per day in Perth**, for international and interstate visitors, respectively.

Kings Parks and Bold Park are part of a bundle of activities (including Rottnest Island and Fremantle Beach) within Perth that may collectively attract visitors to Perth. This assumes that interstate and international tourists do not travel to Perth solely to visit Kings Park and/or Bold Park. Instead, a model of tourism expenditure attributable to BGPA was used which assumes that both parks were one of several attractions which combined influenced tourists' decision to travel to Perth.

This attributable expenditure model takes the average time spent at the parks (3.05 hours as reported by BGPA) and converts it into expenditure by using the daily spending patterns converted to hourly spend by assuming 10 hours of expenditure per day. This approach estimates each international and interstate visitor to Kings Park and Bold Park spend \$23 and \$63, respectively during their trip which can be attributed to BGPA. For 2023, this estimates \$37 million of tourism spend attributable to BGPA.



C.7. Estimating value added and FTE employment

Value added and FTE employment estimates based on visitor expenditure were calculated using the Tourism Satellite Accounting (TSA) framework, adjusted to WA.

This framework is the internationally recognised, best practice approach to estimating the economic contribution of tourism. It adapts the concepts and methods of the Australian Bureau of Statistics' national accounting framework in a way that is useful to measuring tourism and comparable to traditional industries.

Value added and FTE employment estimates based on visitor expenditure were calculated using the Tourism Satellite Accounting (TSA) framework, adjusted to WA.

This framework is the internationally recognised, best practice approach to estimating the economic contribution of tourism. It adapts the concepts and methods of the Australian Bureau of Statistics' national accounting framework in a way that is useful to measuring tourism and comparable to traditional industries.

While conventional IO modelling can be applied to any sector of the economy (including tourism by using an appropriate sector-specific definition of the tourism sector), the TSA approach is Deloitte Access Economics' preferred approach to measuring the economic contribution of the tourism sector. This is because it ensures that the analysis is consistent with international guidelines for measuring and reporting on the economic activity of the tourism sector.

Similar to IO modelling, TSA measures economic value using Value Added and employment metrics. Within the tourism sector, the value added specifically isolates the value tourism facing industries create as part of a supply chain.







Appendix D: Use value and existence value methodology



D.1: Use value methodology

Travel cost methodology was used to assess the use value of the BGPA. This is a revealed preference technique which aims to estimate the monetary value that people pay to gain access to recreational facilitates and other non-market goods such as Kings Park and Bold Park. The costs incurred by visitors to the site are used to determine the value they place on visiting the parks. Costs, including parking and fuel as well as the opportunity cost of their travel time, are used as a proxy for the value they place on the parks.

Inputs for modelling were drawn from the Western Australian Citizen Survey, which collected detailed information around visitors travel to Kings Park and Bold Park. Key insights include visitors' reason for visiting, travel costs, and travel time. Answers were based on the most recent trip to the Kings Park or Bold Park.

On average, WA residents spend \$6.14 travelling to/from the park, with a travel time of approximately 46 mins (Western Australian Citizen Survey). Travel time is converted to dollar-values using a leisure time value of \$11.03 per hour.¹ This gives a total use value of \$15.98 and \$13.14 per person for Kings Park and Bold Park respectively. This totals \$67 million for both parks when extrapolated over the total visits to Kings Park and Bold Park based on visitation data provided by BGPA. This visitation data was adjusted to remove visits from people below 15 years who are assumed less likely to be actively choosing to visit the parks.



D.2 Existence value methodology

The existence value for BGPA was based on a state preference approach to estimate Willingness to Pay for the activities BGPA undertakes. Inputs for the modelling were derived from the Western Australian Citizen Survey in which residents were asked how much funding they believe BGPA should receive, with the caveat that changed funding levels would lead to corresponding changes in taxation levels. Respondents were provided with the current approximate funding level on a per person basis (\$6 per person based on current state government funding) as a reference point. Of the sample, 84% reported wanting to maintain current funding levels or increase the value. The average per person existence value was applied to the WA population aged over 15 years old.

Table D.1: Travel cost parameters

Parameters	Kings Park	Bold Park
Average travel cost (\$)	\$6.99	\$5.29
Average travel time (hours)	0.82	0.71
Average use value (\$ per person)	\$15.98	\$13.14
Sample size (persons)	676	303

Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).

Table D.2: Use value of the parks (2023)

	Use value	WA visits	Total use value (\$, millions)
Kings Park	\$15.98	4,005,000	\$64.0
Bold Park	\$13.14	330,000	\$4.3

Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).

Table D.3: Existence value of BGPA

	Per person existence value		Total existence value (\$, millions)
BGPA	\$9.00	2,230,000	\$20.1

Source: Deloitte Access Economics, Western Australia Citizen Survey (2024).

Appendix E: Social asset methodology



E.1 Social asset value methodology

Kings Park and Bold Park are a social asset that people experience directly or value the activities undertaken by BGPA. To estimate the social asset value the annual use value and existence value was summed over a 30-year period with future flows of income discounted.

Total asset valuation is highly dependent on the discount rate used. BGPA's total asset value was modelled using a discount rate of 3.5%. This is in line with recommendations by the Victorian Institute of Strategic Economic Studies when valuing green spaces and reflects the nature of the parks as a natural asset, with long-term environmental effects.²

The expected population growth rates over the 30-year period were used as inputs to forecast the future use values and existence values. The population growth rates were obtained from the Deloitte Access Economics Business Outlook.



E.2 Social Asset sensitivity

A **travel cost methodology** was used to estimate use value for Kings Park and Bold Park. An alternative measurement of use value would be to **value the time visitors spend in both parks**.

The Western Australian Citizen Survey was used to estimate the average time spent in both parks, which was applied to the number of WA residents visiting both parks that are over the age of 15 years old.

This methodology resulted in the use value increasing from \$1.34 billion over 30 years to \$1.56 billion or an increase of 220 million over 30 years.

The difference in results are summarised in the Table E.1.

Table E.1: Social asset sensitivity analysis

Scenario	Total value	Use value	Existence value
Core	\$1.74 billion	\$1.34 billion	\$395 million
Sensitivity	\$1.96 billion	\$1.56 billion	\$395 million

Source: Deloitte Access Economics,

Western Australian Citizen Survey (2024).

Notes: The core scenario estimated use value using the travel cost method

The sensitivity estimates use value using the value of time spent at the park.





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