



Role of the Gardens for Wildlife Program Within the Blackburn Region

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Introduction

The Gardens for Wildlife (G4W) program is a council-volunteer partnership initiative, designed to support the local community in the creation of sustainable and inviting habitats for local wildlife. This program aims to assist local residents with the introduction of indigenous plant species into their personal gardens. By better incorporating these plants, we can create welcoming gardens that will provide key habitat for birds, insects, lizards, and many other species. The program not only provides key ecological benefits, but also helps foster a sense of stewardship in the local community and strengthens the connection of community to nature.

This report focuses on bird diversity in Blackburn Lake and the Blackburn Creeklands, significant refuges for native birdlife within Melbourne's urban suburbs. We aim to demonstrate the positive impact of the Gardens for Wildlife program on these ecosystems, with a main focus on reducing the impacts of fragmentation within urban bushland. By assessing bird diversity and population trends, we intend to demonstrate the program's potential to enhance greenspaces, safeguard bird populations, and enrich the urban environment.

The subsequent sections will outline the data collection methodology, present survey findings, and analyse their implications. By unveiling the intricate link between community engagement, habitat enrichment, and bird diversity, we seek to foster support for the program's mission while contributing to the preservation of local ecosystems.

Method

Bird data collection at Blackburn Lake and Blackburn Creeklands centres on biannual bird walks, integral to our evaluation of the Gardens for Wildlife program. For the past decade, these expert-led walks have revealed the vibrant bird diversity of these urban refuges. Conducted during autumn and spring, these walks run for approximately 2 hours and aim to note all birdlife presence across both regions. Small groups, guided by experts, explore the park, noting every encountered bird species, their location, and counts on standardised logs. Afterward, observations are consolidated and finalised which will allow for further insights and final edits.

This method reveals hidden avian presence often unnoticed in everyday interactions. Experts' knowledge aids in identifying species through calls and behaviours. Participants gain a deeper understanding of local birdlife in their natural setting and can even inquire about specific species. Beyond data collection, these walks foster community engagement, instil a connection with nature, and support the program's mission. Encouraging participants to bring cameras and binoculars enhances their experience, and post-walk discussions reinforce community bonds. The insights gained contribute to the preservation of these habitats and can be used to enrich the G4W program, with this, we aim to show the power of community-driven conservation in urban settings.

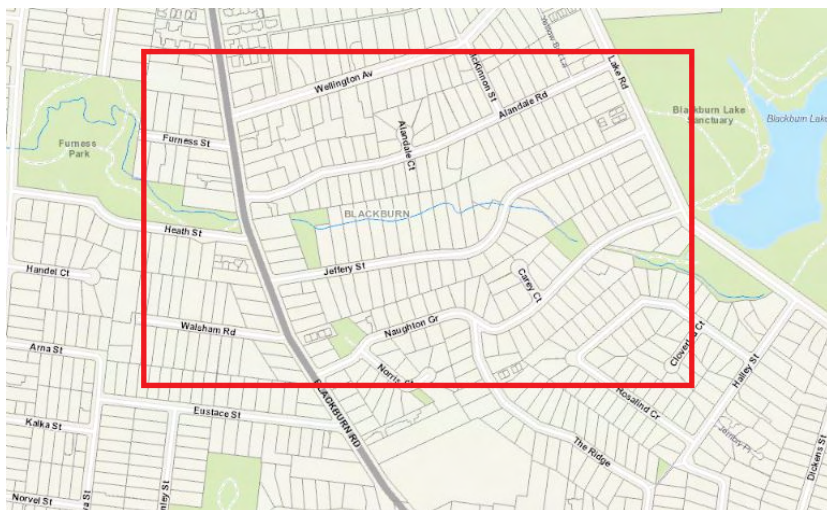


Figure 1. G4W Blackburn Focus Area

The focus area of the program is displayed above in Figure 1, with the main interests being Wellington avenue, Jeffery street and Naughton grove. These addresses are almost entirely residential land and therefore the council has limited influence when attempting to improve habitat quality. While some larger and more dominant species such as the Noisy Miner and Rainbow Lorikeet are very capable of traversing these areas, smaller and more passive species tend to struggle and can become trapped within Blackburn Lake. The inability of these birds to move freely between these major greenspaces can become a major issue, as they all play a role in maintaining the local biodiversity. The program aims to address this issue by providing free guidance to residents, encouraging them to create wildlife-friendly gardens that can act as stepping stones and corridors for these smaller bird species, ultimately enhancing the overall health and balance of the ecosystem.

Street Images



Figure 2. Wellington Ave

Wide open road mostly lined with tall Eucalypts either side, lots of lawn and a reasonable tree canopy, not many medium sized shrubs present. This effectively represents a typical street in the Melbourne suburbs.



Figure 3. Jeffery Street

Narrow street that is densely packed with plant life, range of various trees present and lots of medium sized shrubs scattered throughout. This seems much more ideal for small bird life.



Figure 4. Naughton Ave

Another wider and busier street, less lawn than Wellington Ave but an even more open canopy. This connects directly onto Blackburn Lake so is likely to be a vital pathway for wildlife.

Bird Survey Data Analysis

The bird survey data from Blackburn Lake and Blackburn Creeklands provides valuable insights into the bird diversity and populations within these urban refuges. While both areas are dedicated to preserving biodiversity including native birdlife there are distinct patterns and differences observed between the two locations.

Table 1. Blackburn Creeklands bird data 2021&2023

Blackburn Creeklands	April 2021		Apr-23
Species (common name)	(5+ spotted = lots)	Species (common name)	(5+ spotted = lots)
Rainbow lorikeet	lots	Rainbow lorikeet	Lots
Kookaburra	2	Kookaburra	Lots
Magpie	lots	Magpie	Lots
Noisy Miner	lots	Noisy Miner	Lots
Galah	3	Galah	Lots
Little Corella	lots	Little Corella	lots
Little Raven	3	Little Raven	Lots
Grey Butcher Bird	lots	Grey Butcherbird	Lots
Musk Lorikeet	lots	Musk Lorikeet	Lots
Tawny Frogmouth	4	Tawny Frogmouth	4
Gang Gang Cockatoo	2 +	Welcome Swallow	2
Welcome Swallow	1	Pardalote	2
Pied Currawong	lots	Eastern Rosella	1
King Parrot	lots	Spotted Dove	2
Magpie lark	4	Australian White Ibis	3
Brown thornbill	2	Little Pied Cormorant	4
Superb Fairy wren	1	King Parrot	Lots
Grey Fantail	1	Magpie Lark	Lots
Australian Black Duck	5	Brown Thornbill	2
Eastern Rosella	lots	Chestnut Teal	1
Spotted Dove	1	Australian Black Duck	Lots
Crimson Rosella	2	Pied Currawong	Lots
Chestnut Teal	2	Crimson Rosella	3
		Gang-gang Cockatoo	1-2
		Indian Mynah	1
		White-faced Heron	2 (in flight)

Table 2. Blackburn Lake bird data 2021&2023

Blackburn Lake	Apr-17	April
Spring/Autumn date	2021	2023
Year		
Galahs	1	Lots
Rainbow Lorikeets	Lots	Lots
King Parrot	Lots	Lots
Red Wattlebird	Lots	Lots
Noisy Miner	Lots	Lots
Spotted Pardalote	3	Lots
White-backed Magpie	Lots	Lots
Musk Lorikeets		9
Gang-gang Cockatoos	5	6
Crimson Rosellas	Lots	6
Pacific Black Duck	4	4
Dusky Moorhen	4	4
Eastern Spinebill	3	4
Superb Fairy Wren	3	4
Brown Thornbill	6	4
Grey Fantail	5	4
Welcome Swallow	Lots	3
Eastern Rosellas	2	3
Common Bronzewing		3
Tawny Frogmouth	1	3
Spotted Dove	Lots	3
Little Pied Cormorant	2	1
Chestnut Teal	5	1
Kookaburra	6	1
Little (Short-billed) Corella	Lots	1
White-plumed Honeyeater		1
Golden Whistler	1	1
White-browed Scrub Wren	5	1
Little Raven	Lots	1
Brown Goshawk		1
Grey Butcherbird	4	
Pied Currawong	1	
Wood Duck	2	
Eurasian Coot	3	
Australasian Grebe	1	

Due to the difficulty in counting large flocks of birds, groups containing a minimum of 5 individuals, with an unidentifiable total were labelled as "lots".

Table 3. Comparing Blackburn Lake and Creekland bird populations from Tables 1 and 2.

Blackburn Summary	Unique to Lake	Unique to Creek	Found in Both
	Red Wattlebird	Magpie Lark	Galahs
	Spotted Pardalote		Rainbow Lorikeets
	Dusky Moorhen		King Parrot
	Eastern Spinebill		Noisy Miner
	White-browed Scrub Wren		White-backed Magpie
	Superb Fairy Wren		Musk Lorikeets
			Gang-gang Cockatoos
			Crimson Rosellas
			Brown Thornbill
			Grey Fantail
			Welcome Swallow
			Eastern Rosellas <input type="checkbox"/>
			Tawny Frogmouth
			Spotted Dove
			Chestnut Teal
			Kookaburra
			Little (Short-billed) Corella
			Little Raven
			Grey Butcherbird
			Pied Currawong
			Pacific Black Duck

Birds were considered present if 4 or more sightings were made within the area across both walks.

Common and Abundant Species:

- Both areas consistently host some widespread Australian species that are well-adapted to urban environments, such as Rainbow Lorikeets, King Parrots, and Noisy Miners. These species are frequently spotted, indicating a favourable habitat that supports a range of birdlife.

Varied Sightings and Specialised Species:

- While the abundance of certain species like Magpies and Musk Lorikeets are similar in both areas, there are variations in other population trends. Blackburn Lake's data reveals frequent sightings of species like the Spotted Pardalote (lots) and Red Wattlebird (lots) that weren't spotted within the creeklands. The Pardalote especially is seeing a decline,

especially in dense urban areas, therefore the strong presence in Blackburn Lake would indicate that the avian community might rely heavily on the habitat provided here.

- The Blackburn Lake data also saw a much higher presence of Superb Fairy Wren (7 sighted across both years) when compared to the creeklands, whose presence dropped from just a single sighting in 2021, to none in 2023. The disappearance of this species within the area could indicate changes in habitat that should be studied further.

Notable Observations:

- Both areas have noteworthy observations, the presence of Gang-gang Cockatoos at Blackburn Lake and few sightings within the creeklands indicates a significant suitability for the area, this cockatoo is listed as endangered under the EPBC Act and therefore should be highly protected.
- The presence of Tawny Frogmouths here can be a positive indicator of habitat quality, biodiversity, and the overall health of the ecosystems in these areas. They can indicate a healthy and diverse ecosystem with a range of prey species available for foraging.
- Musk Lorikeets are also common across both regions, this emphasises the importance of such sanctuaries, while not threatened, these birds can be uncommon in dense urban areas, therefore it's important that they are protected in sanctuaries such as these.

Discussion

Decline of Small Bird Populations

The examination of bird data presented in Table 3 unveils noteworthy disparities in the presence of avian species between Blackburn Lake and Blackburn Creeklands, particularly among the category of small birds weighing under 60 grams.



Figure 5. An example of a Spotted Pardalote (Ian Moodie, 2022)

This subset includes species such as the Superb Fairywren, Spotted Pardalote, Eastern Spinebill, and White-browed Scrub Wren. Interestingly, these small bird species registered no sightings within the creeklands during both the 2021 and 2023 bird surveys. Complementing this dataset, Figure 4 draws from iNaturalist's bird sighting records, revealing a similar story: the Superb Fairywren garnered 347 individual sightings at Blackburn Lake over a 7-year span, while the Creeklands reported zero sightings during the same timeframe.

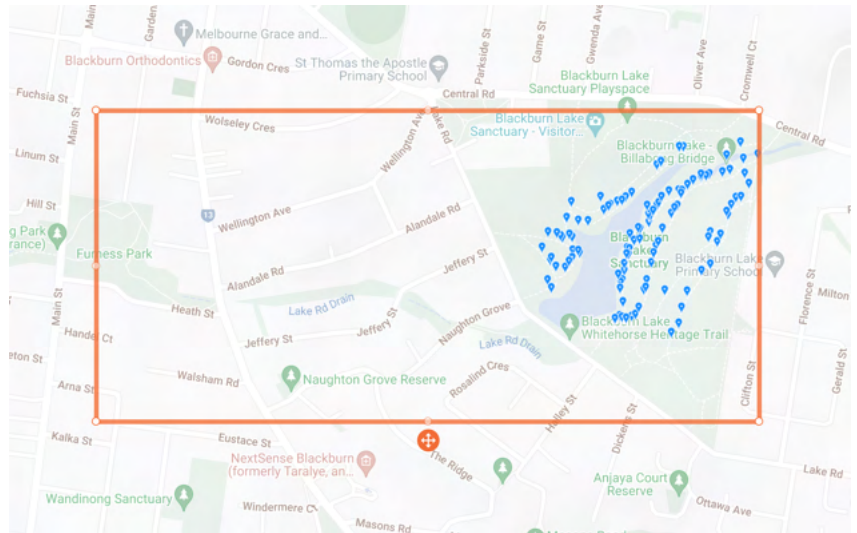


Figure 6. Map of Superb Fairywren sightings within the target area, the blue markers indicating an individual sighting. (Source: iNaturalist.org)

The absence of small bird populations within the creekland and surrounding areas is exemplified by our data shown above, this should serve as a crucial reminder regarding the delicate ecosystem balance required for the survival of small birds such as the Superb Fairywren. While habitat loss through land clearance is often attributed to such declines, it's vital that we consider the multitude of other factors that are known to accelerate this process. One standout factor is the pronounced competition small birds face with other regional species, most notably the Noisy Miner, known for its remarkable adaptability and aggressiveness. This is a definite area of focus, as even culling has been proven ineffective when reducing Noisy Miner influence, instead, ecological restoration and the promotion of low lying understory should be a priority (Beggs, 2020).

Importance of Habitat Composition

The intricate relationship between habitat composition and the survival of small bird species, such as the Superb Fairywren, stands as a pivotal consideration in the endeavour to conserve and restore their populations. It is becoming increasingly evident that the presence of suitable low-lying shrubbery and the right mix of plant species play a decisive role in providing a beneficial environment for these delicate avian inhabitants. An Elliot Noe (2022) study identified that canopy openness is one of the most influential negative drivers towards native bird abundance. Thus, a key element that must be focused on is the creation of balanced habitats through the use of defensive shrubbery. These shrubs offer a vital refuge for smaller native birds such as the Superb Fairywren, allowing them to evade predators and establish themselves within a region. Hedge Wattle, in particular, stands out as one of the best and most effective defensive habitats (Figure 4). Its dense and wide structure provides a complex and protective thicket, allowing small birds to take refuge and conceal themselves from potential threats. Other species that provide a similar habitat function include *Gahnia radula* and *Gahnia sieberiana*.



Figure 7. An example of *Gahnia radula*



Figure 8. An example of Hedge Wattle

The balance of plant species is another key factor that plays a crucial role in fostering an environment that supports small bird populations. Some plants, while visually appealing and Australian native, may not align with the ecological requirements for the local area (Campbell et al., 2022). Focusing on tree species, the Black Wattle and Drooping She-Oak are commendable choices for their high protein and low sugar production, minimising the attraction of aggressive species such as the Noisy Miner. This combats the primary issue regarding the Noisy Miner, their tendency to monopolise and gate-keep resources, even against non-competing species (Campbell et al., 2022). By striking a balance between sugary exudates and ground coverage, we can create environments that can tip the balance in favour of small birds, allowing them to establish themselves in highly competitive environments. (Beggs, 2020).

The Role of Private Gardens Within Our Ecosystems

With the ongoing urbanisation of Melbourne suburbia, the role of the Gardens for Wildlife program has become indispensable in providing refuge for local fauna, particularly vulnerable small bird species. As local habitats continue to shrink, some larger parks are proving inhospitable due to intense competition (Martin & Bonier, 2018). Consequently, private gardens are emerging as the primary and essential sanctuary for these delicate avian species. Gardens, boasting diverse arrays of selected plant species and thoughtfully designed layouts, present a unique opportunity to create microcosms of natural habitats within urban settings. The Gardens for Wildlife program recognises this urgency and guides locals in establishing high-quality habitats that cater to the intricate needs of these avian residents.

As the program promotes the creation of wildlife-friendly gardens, it underscores the fact that conservation is not confined to large-scale wildlife reserves. It conveys that every patch of green, every backyard, and every garden bed has the potential to exert a significant impact on the local ecosystem. By embracing the Gardens for Wildlife program, individuals can play a substantial role in influencing the biodiversity of not only their immediate surroundings but also the broader region. This demonstrates that collective efforts, regardless of their scale, hold the power to bring about meaningful change for the local flora and fauna.

Creating a Corridor of Biodiversity Within the Blackburn Region

Focusing on the Blackburn region, the Gardens for Wildlife program aims to establish a corridor between Blackburn Lake and the Blackburn Creeklands. This strategic effort responds to the clear discrepancy in bird species across the area, with Blackburn Lake emerging as the primary sanctuary for small avian species. Our analysis reveals the need to bridge this gap, prompting the program's proactive approach. To further engage members within the target area, we implemented a promotional letter campaign, which successfully led to an additional 24 sign-ups, demonstrating the growing community interest and involvement.

The objective is to create an uninterrupted corridor of high-quality habitats that facilitate safe passage for small avian species between the two parks. This strategic approach not only seeks to expand the range of delicate birds but also promotes genetic diversity and strengthens their population resilience (Campbell et al., 2022). The existing data about bird diversity for the two reserves provides a rare opportunity to gain evidence for the impact of the Gardens for Wildlife program.

By creating high quality habitats, we can ensure that threatened species within the area, such as the Gang-gang Cockatoo, will be protected into the future. These birds are not only an iconic Australian species, but they also play a critical role in maintaining ecosystem balance, and their decline can have cascading effects on other species and habitats (DAWE, 2022). The Gardens for Wildlife program offers a platform to actively protect and restore habitats that support endangered species. By focusing efforts on creating tailored environments that cater to the specific needs of these species on private land, we can expand their habitats and provide much

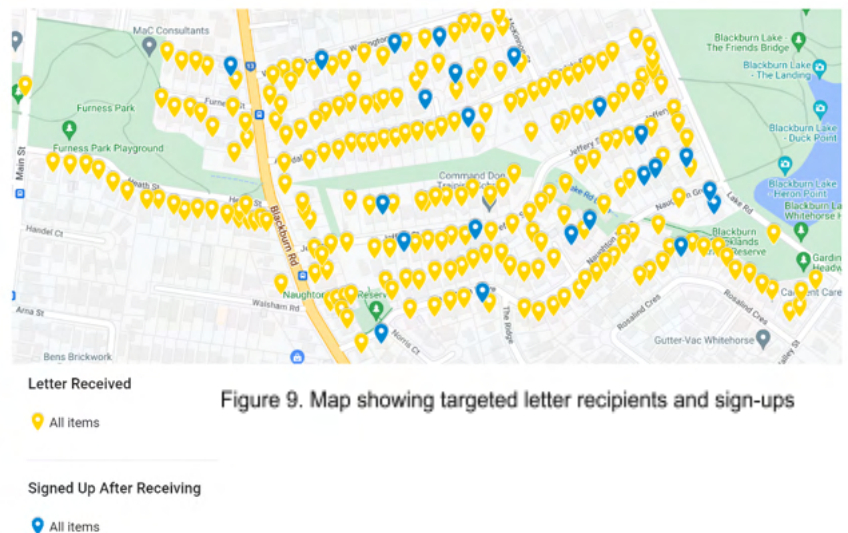


Figure 9. Map showing targeted letter recipients and sign-ups

needed support for some of our iconic native species, as well as contribute to the overall health of our ecosystems.

The program's impact is supported by previous participant feedback, showcasing the benefits achievable through modest changes. 98% of respondents found the final report helpful in creating their ideal garden and 70% have noticed increased overall wildlife presence, some reporting new sightings of small bird species, such as Eastern Spinebills and Spotted Pardalotes, along with a general increase in insect life. This feedback validates our initial hypothesis, highlighting the practical benefits attainable through the program's principles and emphasising the effectiveness of tailored habitat design in bringing previously absent or less frequent avian residents into the landscape.

Conclusion

The purpose of this report has been to document a case study that will shed light on the invaluable role of the Gardens for Wildlife program in fostering thriving ecosystems within Melbourne's urban landscapes. Through the analysis of bird diversity and population trends in Blackburn Lake and Blackburn Creeklands, we have underscored the positive impact of community-driven conservation efforts. Our findings provide a benchmark that may highlight the potential of private gardens to serve as vital sanctuaries for vulnerable avian species, particularly in the face of shrinking natural habitats and increasing urbanisation. The program's emphasis on tailored habitat design not only supports delicate birds but also nurtures genetic diversity and strengthens population resilience.

Furthermore, the establishment of a biodiversity corridor between Blackburn Lake and Blackburn Creeklands stands as a proactive approach to bridge the gap in bird species distribution. This strategic endeavour offers hope for the protection of small avian species, as well as threatened species like the Gang-gang Cockatoo, acknowledging their pivotal role in maintaining ecosystem balance. Through participant feedback and observed changes in wildlife presence, the effectiveness of the Gardens for Wildlife program is confirmed. As individuals

engage with the program, they contribute to a broader movement that extends beyond their immediate surroundings, influencing regional biodiversity and ecological health.

Gardens for Wildlife embodies a tangible solution to harmonise urban living with nature, fostering community engagement, customised habitat design, and stewardship. As urbanisation progresses, the program offers a beacon of hope, preserving wildlife, enriching communities, and strengthening the vital connection between humanity and the environment.

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