

Bathing Birds: Summer Report 2015

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Superb Fairy-wren, photo with thanks to Wanda

A citizen science initiative by:



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Introduction

A big thank you to everyone who took part in our Bathing Birds surveys in winter 2014 and summer 2015. We could not pull off such an ambitious study without your support! A special thank you to the 580 people who stayed with us and took part in both years. We are just thrilled with the response we have received and the fantastic data generated.

We have broken this report into a number of sections. [Section 1](#) is about our citizen scientists, [Section 2](#) is about the birds visiting birdbaths Australia-wide, [Section 3](#) lists the top ten birds visiting birdbaths by state, [Section 4](#) investigates the effect of neighbourhood type on birds visiting birdbaths and [Section 5](#) is a discussion of the findings and what you can do to attract small birds into your garden. We then summarise our conclusions in [Section 6](#).

Our research questions

The aim of this study is to see what birds are using birdbaths, how they may change with season (winter versus summer) and if our garden habitats (e.g. presence of native plants or % of shrub cover in the garden) and behaviours (e.g. presence of pets, feeding wild birds) influence what bird species visit our birdbaths. We are currently analysing the role of garden habitat and behaviour on birds visiting bird baths and will have recommendations for you in a separate document once that has been completed.

So we have a lot to do! Now that we have data on birds visiting birdbaths over two seasons (winter and summer), we can start to address the first part of the question we wanted to answer: what birds are visiting birdbaths and how do they change between seasons? We are also going to investigate how the birds at your birdbath change depending on your neighbourhood type.

About the data

To ensure consistency between the two seasons we needed to compare *like* with *like*. In order to do this we have filtered the data to reflect one survey a day and up to three surveys a week from each citizen scientist. We were not this strict when we were writing up the winter study, which means some of the bird data will have changed slightly from what is presented in the 2014 Bathing Birds Winter Report.

How we summed up the data

Our citizen scientists were asked to record the species (e.g. Rainbow Lorikeet) and the number of birds of each species that visited the birdbath during a survey period (20 minutes). As observed by our citizen scientists, the same bird can make multiple visits to the bath during the 20 minute survey period, resulting in an inflated number of sightings for that bird. To eliminate this bias, we only recorded an individual bird as being present once in a single survey, regardless of how many times it may have appeared during that 20 minutes. All surveys were then combined and we calculated the percentage of surveys in which each species appeared. The proportion of surveys where a species was sighted was calculated as a/b , where a = number of distinct surveys where a species was recorded and b = the total number of surveys conducted. This allows us to express the abundance of each species relative to the abundance of all bird species, which allows us to rank the relative abundance of various species against each other, independent of garden location.

Section 1. About our citizen scientists

We are delighted to report that both our winter and summer bathing bird surveys had participation from over 1,000 citizen scientists (including 580 who took part in both seasons), providing us with lots of information about the birds using backyard birdbaths. A comparison of the two surveys is given in the table below. There were a few changes in participation between the two surveys, with our summer survey having a slightly lower participation rate, but recording more species of birds overall.

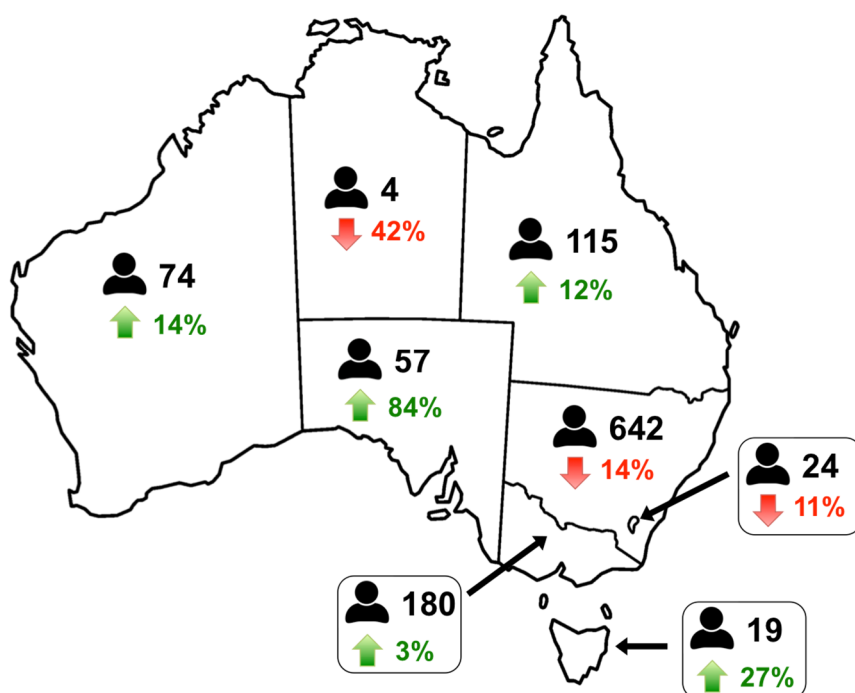
Table 1. Citizen scientists' participation in Bathing Birds winter and summer study based on one survey a day and a maximum of three surveys a week

	Winter 2014	Summer 2015
Survey dates	27 June – 27 July 2014	23 January- 23 February 2015
Number of citizen scientists	1,166	1,115
Number of surveys with birds	6,552	6,163
Number of surveys without birds	1,974	1,286
Number of bird species recorded	213	225

Where were our citizen scientists from?

The map below summarises citizen scientists' participation rate by state for our summer study, and how these numbers compare to participation in the winter study. As before, the state with the greatest number of participants was New South Wales. The number of citizen scientists taking part in the summer study increased in five states – Victoria, Queensland, Tasmania, South Australia and Western Australia. We are delighted to have an increase in participation in our surveys as this gives us more robust data in these states.

Participation in the summer Bathing Birds study:



What sorts of birdbaths do you have?

Based on the results of both surveys so far, pedestal/elevated birdbaths are by far the most common type found in Australian backyards, accounting for a whopping 85% of all birdbaths that citizen scientists were monitoring. Whilst this is an interesting finding, it means that we *might not* have enough data on different bath types to build up a clear picture of which types are preferred by different species. However we will explore the data further and endeavour to draw some conclusions



Sulphur Crested Cockatoo, photo with thanks to Carole

Pedestal/elevated bath	85%
Saucer on ground	4%
Pot on ground	2%
Hanging bath/saucer	2%
Pond	2%
Water Feature/fountain	2%
Other (e.g. Swimming pools)	3%



Rainbow Lorikeets, photo with thanks to Jenny



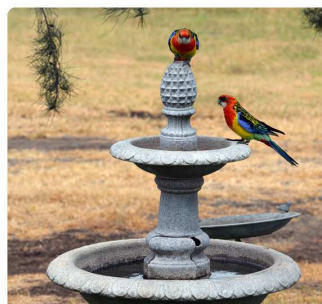
Laughing kookaburra, photo with thanks to Wanda



Double-barred Finches, photo with thanks to Vicki



Red-Browed Finch, photo with thanks to Alistair



Eastern Rosellas,
photo with thanks to Kelly



Laughing Kookaburra,
photo with thanks to Bob

Section 2. Top 20 birds visiting your birdbaths

Our summer Bathing Birds study kicked off on the 23rd of January and ran until the 23rd of February 2015. In that time, a total of 7,449 surveys were submitted, representing 225 species of birds.

When we compared the top 20 birds recorded in the summer study to what you recorded in the winter study, we discovered that there were changes in the bird species that were using your birdbaths. (For a full list of birds recorded in the winter and summer surveys please see appendix 1.)

HOW TO READ THE TABLES

Rank:	The rank of the species recorded at birdbaths by % of surveys
% of surveys:	The percentage of summer surveys where the species was recorded
Rank Change:	The change in rank n (number) from summer to winter surveys
	▲ <i>n</i> increase on last year by <i>n</i> places in rank
	▼ <i>n</i> decrease from last year by <i>n</i> places in rank
	● no change in rank from last year
	★ species was not recorded in the winter study
* indicates that the bird is an introduced species.	

Table 2. The rank of the top 20 birds recorded at birdbaths and the percentage of surveys they occurred in.

Rank	Common name	% of surveys	Rank change from winter survey
1	Noisy Miner	13.86%	▲ 1
2	Australian Magpie	11.20%	▲ 1
3	New Holland Honeyeater	10.13%	▲ 6
4	Red Wattlebird	8.59%	▲ 6
5	House Sparrow*	8.40%	▲ 8
6	Superb Fairy-wren	8.06%	▲ 5
7	Rainbow Lorikeet	7.58%	▼ 6
8	Magpie-lark	6.75%	▲ 6
9	Red-browed Finch	6.63%	▲ 15
10	Willie Wagtail	6.36%	▲ 9
11	Grey Fantail	6.07%	▲ 5
12	Spotted Dove*	5.74%	●
13	Eastern Spinebill	5.43%	▼ 8
14	Crimson Rosella	4.92%	▼ 8
15	Brown Thornbill	4.74%	▲ 8
16	Satin Bowerbird	4.45%	▼ 8
17	Silvereye	4.39%	▲ 11
18	Yellow-faced Honeyeater	4.34%	▲ 4
19	Little Wattlebird	4.23%	▲ 2
20	Common Blackbird*	4.13%	▼ 5

One of the most notable changes between the winter and summer study was that Rainbow Lorikeets lost their top spot. During the winter study Rainbow Lorikeets were the most frequently recorded bird at birdbaths where they appeared in nearly 14% of surveys (see appendix 1). Surprisingly, in the summer study we found that Rainbow Lorikeets dropped to 7th place and were only recorded in

around 8% of surveys. Although Rainbow Lorikeets are largely sedentary, they do have some nomadic movement in response to seasonal flowering or fruiting plants, which may explain their decline in our summer survey. The nomadic movement of Lorikeets also explains why some years we see more lorikeets than others.

Noisy Miners took prime position as the top bird at birdbaths during the summer study, appearing in nearly 14% of surveys, with Australian Magpies coming in as the second most common species. We also saw increased numbers of small birds at birdbaths in the summer study. New Holland Honeyeaters increased in occurrence at birdbaths, becoming the 3rd most common bird recorded, appearing in 10% of surveys. Superb Fairy-wrens increased during the summer study where they appeared in 8% of surveys and were the 6th most common bird recorded overall. Willie Wagtails and Grey Fantails both increased in the summer study, appearing in 6% of surveys each. Small bird species new to the top 20 birds (compared to winter study) were Red-browed Finches, Yellow-faced Honeyeaters, Silvereyes and Brown Thornbills. Eastern Spinebills, on the other hand, dropped eight places in the summer study, appearing in only 5% of surveys.

Introduced birds did feature in the top 20, as we would expect. House Sparrows increased eight places from the winter study to be the 5th most common bird recorded. Spotted Doves held their position as the 12th most common bird recorded at birdbaths, whilst Common Blackbirds dropped five places to appear as the 20th most common bird recorded. Similar to the winter study, Common Mynas (also known as Indian Mynas) did not feature in the top 20 birds recorded at birdbaths, holding their position as the 25th most commonly recorded bird and only appearing in 3% of surveys.



places from the winter study to be the 5th most common bird recorded. Spotted Doves held their position as the 12th most common bird recorded at birdbaths, whilst Common Blackbirds dropped five places to appear as the 20th most common bird recorded. Similar to the winter study, Common Mynas (also known as Indian Mynas) did not feature in the top 20 birds recorded at birdbaths, holding their position as the 25th most commonly recorded bird and only appearing in 3% of surveys.

In the summer study, we have seen a change in the frequency and type of species recorded at birdbaths across Australia compared to the winter study. Let's now see the breakdown of these changes by state.

The Green Catbird appeared in 0.33% of surveys and ranked as the 88th most common bird - down 12 places from winter survey. Photo with thanks to Helen

Section 3. Top ten bird species by State

Over the following pages we list the top ten most commonly recorded species at birdbaths. It is important to remember that in some states and territories our participation rate was low, so what was seen and reported may not be representative of what is actually going on in birdbaths in that state/territory overall. This is why it is important that we get as many people as we can to take part in the Bathing Birds surveys, as the robustness of our data will increase with increased participation. (For a full list of birds recorded in the winter and summer surveys by state please see appendix 2.)

HOW TO READ THE TABLES

Rank:	The rank of the species recorded at birdbaths by % of surveys
% of surveys:	The percentage of summer surveys where the species was recorded
Rank Change:	The change in rank n (number) from summer to winter surveys
	▲ n increase on last year by n places in rank
	▼ n decrease from last year by n places in rank
	● no change in rank from last year
	★ species was not recorded in the winter study
*	indicates that the bird is an introduced species.



The Brown Goshawk, new to the summer survey ranked as the 163th most common bird, appeared in just 0.05% of surveys. Photo with thanks to Wanda.

Queensland

Quick Stats:

We had a good participation rate from Queensland in the summer Bathing Birds study where we had 115 citizen scientists submitting 782 surveys. This built on the winter study where we had 103 citizen scientists submitting 798 surveys.



Over the winter and summer study we had a total of 144 bird species recorded at birdbaths in Queensland. During the winter study 124 species were recorded, whilst during the summer study we had 110 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 3. The top ten birds recorded at birdbaths in Queensland, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	Noisy Miner	21.01%	●
2	Brown Honeyeater	12.85%	▲ 1
3	Lewin's Honeyeater	11.81%	▲ 1
4	Rainbow Lorikeet	10.76%	▼ 2
5	Magpie-lark	10.59%	▲ 5
6	Blue-faced Honeyeater	10.07%	●
7	Willie Wagtail	8.68%	▲ 2
8	Double-barred Finch	7.64%	▼ 1
9	Little Friarbird	5.73%	▲ 19
10	Australian Magpie	5.38%	▲ 2

Interesting Findings:

- Queensland's top ten featured five species of honeyeaters: Noisy Miners, Brown Honeyeaters, Lewin's Honeyeaters, Blue-Faced Honeyeaters and Little Friarbirds.
- Noisy Miners were the most frequently recorded bird at birdbaths in both the summer and winter study, appearing in 21% of surveys.
- As in NSW, Rainbow Lorikeets were less common at birdbaths during the summer study.
- Two small honeyeaters, the Brown Honeyeater and Lewin's Honeyeater, both increased during the summer study, appearing in more surveys than the Rainbow Lorikeet.
- Grey Fantails dropped out of the top ten birds at Queensland birdbaths in the summer survey, appearing in just 3% of surveys in the state. This is likely due to the fact that this species travels south in summer to breed in coastal NSW, Victoria and Tasmania.
- Little Friarbirds increased during the summer survey to appear in nearly 6% of surveys, reflecting the fact that they are summer breeding visitors to Queensland.
- No introduced birds were amongst the top ten birds recorded at birdbaths during the summer survey.

New South Wales

Quick Stats:

During the summer study, we had the greatest participation rate in New South Wales, where we had 642 citizen scientists submitting 4,154 surveys. This is a slight decrease in participation rate compared to the winter study, where we had 744 citizen scientists submit 5,553 surveys.



Over the winter and summer studies we had a total of 203 bird species recorded at birdbaths in NSW. During the winter study 176 species were recorded, whilst during the summer study we had 170 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 4. The top ten birds recorded at birdbaths in NSW, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	Noisy Miner	18.91%	▲ 1
2	Australian Magpie	11.45%	▲ 2
3	Rainbow Lorikeet	9.85%	▼ 2
4	Red-browed Finch	8.13%	▲ 12
5	Satin Bowerbird	7.98%	▲ 1
6	Superb Fairy-wren	7.73%	▲ 3
7	Eastern Spinebill	5.89%	▼ 2
8	Red Wattlebird	5.89%	▲ 2
9	House Sparrow*	5.71%	▲ 10
10	Magpie-lark	5.71%	▲ 5

Interesting Findings:

- Rainbow Lorikeets lost their top spot to Noisy Miners, which moved up to take first place as the most commonly recorded bird in NSW, appearing in nearly 19% of surveys. In the winter study Rainbow Lorikeets were recorded in nearly 17% of surveys and dropped during the summer study to appear in only 10% of surveys. As mentioned previously, this may have to do with seasonal movements of the birds as they follow flowering and fruiting plants.
- We lost Pied Currawongs from the top 10 birds for NSW as they dropped a considerable 24 places from the winter study to appear as the 27th most commonly recorded bird at birdbaths. Their high occurrence in the winter study may have been an effect of migrating to towns and cities during winter months although we cannot be sure.
- Red-browed Finches increased notably, jumping 12 places from the winter study to be the 4th most commonly recorded bird at birdbaths.
- Superb Fairy-wrens increased in occurrence during the summer study, appearing in 8% of surveys.
- House Sparrows were the only introduced bird in the top 10 birds for NSW. They increased ten places in the summer survey, being recorded in nearly 6% of surveys.

Australian Capital Territory

Quick Stats:

In the ACT we had 24 citizen scientists submit 161 surveys during the summer study. This was slightly lower than the winter study where we had 27 citizen scientists submitting 195 surveys.



Over the winter and summer study we had a total of 51 bird species recorded at birdbaths in ACT. During the winter study 38 species were recorded, whilst during the summer study we had 40 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 5. The top ten birds recorded at birdbaths in the ACT, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	Red Wattlebird	41.67%	▲ 1
2	Crimson Rosella	23.61%	▼ 1
3	Magpie-lark	13.89%	▲ 3
4	Australian Magpie	13.19%	●
5	Crested Pigeon	13.19%	▲ 4
6	House Sparrow*	12.50%	▼ 1
7	Pied Currawong	11.11%	▼ 4
8	Silvereye	10.42%	▲ 7
9	Superb Fairy-wren	10.42%	▲ 3
10	Eastern Rosella	9.03%	▲ 11

Interesting Findings:

- Red Wattlebirds replaced Crimson Rosellas as the most commonly recorded bird at birdbaths during the summer study, appearing in more than 40% of surveys.
- ACT was the only state where the Pied Currawong appeared in the top ten birds, being recorded in 11% of surveys.
- House sparrows were the only introduced bird recorded in the top ten birds at birdbaths and appeared in 12% of surveys.
- Only two small native birds made it into the top ten bird species recorded at birdbaths – Superb Fairy-wrens and Silvereyes. Both birds have increased since the winter survey and appeared in almost 11% of surveys each.
- Eastern Rosellas jumped 11 spots to appear in 9% of surveys and make it into the top ten.

Victoria

Quick Stats:

In Victoria, 180 citizen scientists submitted 1,272 surveys during the summer study. This built on the winter study where we had 175 citizen scientists submitting 1,163 surveys.



Over the winter and summer studies we have had a total of 115 bird species recorded at birdbaths in Victoria. During the winter study 77 species were recorded, whilst during the summer study we had 112 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 6. The top ten birds recorded at birdbaths in Victoria, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	New Holland Honeyeater	18.72%	▲ 1
2	House Sparrow*	15.25%	▲ 1
3	Australian Magpie	14.91%	▲ 3
4	Superb Fairy-wren	13.09%	▲ 5
5	Grey Fantail	10.83%	▲ 15
6	Brown Thornbill	9.71%	▲ 2
7	Spotted Dove*	9.62%	●
8	Yellow-faced Honeyeater	9.53%	▲ 69
9	Common Blackbird*	9.36%	▼ 8
10	Crimson Rosella	8.93%	▼ 5

Interesting Findings:

- As we leave NSW and Queensland, the occurrence of Noisy Miners and Rainbow Lorikeets in surveys decreases. Instead, the most abundant bird at birdbaths was a small honeyeater, the New Holland Honeyeater, which appeared in nearly one in five surveys.
- Introduced House Sparrows increased to second place and were recorded in 15% of surveys.
- We had a number of small native birds in the top ten – Superb Fairy-wrens, Grey Fantails and Brown Thornbills. All three species appeared in a greater percentage of surveys during summer than winter.
- Migration patterns seem to have had an influence on some of the top ten species. Yellow-faced Honeyeaters jumped a massive 69 spots to take 8th position and appeared in nearly 10% of surveys. While some Yellow-faced Honeyeaters are sedentary, hundreds of thousands of them migrate northward in autumn to spend the winter in Queensland, then return south in the spring to breed in southern NSW and Victoria so we are probably seeing the returning birds in summer.
- Likewise, Grey Fantails are a summer migrant into Victoria, which explains why they increased by 15 places from the winter study, appearing in nearly 11% of surveys.
- Invasive Common Blackbirds fell from the top spot during the winter study to 9th place, appearing in 9% of surveys, while Spotted Doves stayed as the 7th most recorded bird at birdbaths during both the summer and winter study. Common Mynas dropped out of the top 10 birds recorded during the summer study to 14th position (see appendix 2 for details).

Tasmania

Quick Stats:

In Tasmania we had 19 citizen scientists submit 150 surveys during the summer study. This built on the winter study where we had 15 citizen scientists submitting 110 surveys.



Over the winter and summer study we had a total of 42 bird species recorded at birdbaths in Tasmania. During the winter study 24 were recorded, whilst during the summer study we had 39 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 7. The top ten birds recorded at birdbaths in Tasmania, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	New Holland Honeyeater	28.00%	▲ 3
2	House Sparrow*	26.40%	▲ 7
3	Brown Thornbill	18.40%	▲ 3
4	Common Blackbird*	17.60%	▲ 6
5	Superb Fairy-wren	17.60%	▼ 2
6	Black-headed Honeyeater	12.80%	▲ 9
7	Grey Fantail	11.20%	▼ 6
8	Common Starling*	10.40%	★
9	Eastern Spinebill	10.40%	▼ 7
10	Yellow-throated Honeyeater	10.40%	▼ 5

Interesting Findings:

- New Holland Honeyeaters were the top bird in the summer survey, appearing in 28% of surveys, similar to Victoria, South Australia and Western Australia. They replaced Grey Fantails in the top position for the summer survey.
- Superb Fairy-wrens, Eastern Spinebills and Yellow-throated Honeyeaters were less commonly recorded in the summer study than the winter study.
- Black-headed Honeyeaters and Brown Thornbills both increased during the summer survey, appearing in nearly 13% and 18% of surveys respectively.
- Grey Fantails decreased during the summer study compared to the winter study, which is surprising as the bird migrates to Tasmania from the mainland during the summer months. This result may be due to the relatively low participation rate in Tasmania.
- The introduced Common Starling was a new bird in the summer study, appearing in 10% of surveys, while introduced House Sparrows and Common Blackbirds were more frequently observed in summer, appearing in 26% and nearly 18% of surveys respectively.

South Australia

Quick Stats:

For South Australia we had 57 citizen scientists submitting 425 surveys during the summer study. This built on the winter study where we had 31 citizen scientists submitting 244 surveys.



Over the winter and summer studies we have had a total of 83 bird species recorded at birdbaths in South Australia. During the winter study 51 species were recorded, whilst during the summer study we had 78 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 8. The top ten birds recorded at birdbaths in South Australia, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	New Holland Honeyeater	42.36%	▲ 1
2	House Sparrow*	22.56%	▼ 1
3	White-plumed Honeyeater	18.80%	▲ 6
4	Red Wattlebird	17.79%	▲ 1
5	Magpie-lark	15.79%	▼ 2
6	Spotted Dove*	14.79%	▲ 1
7	Australian Magpie	13.03%	▲ 1
8	Common Blackbird*	10.78%	▼ 4
9	Common Starling*	9.27%	▲ 3
10	Superb Fairy-wren	9.02%	●

Interesting Findings:

- During the summer study New Holland Honeyeaters were the most frequently recorded birds at South Australian birdbaths, appearing in close to half of all surveys.
- Introduced House Sparrows dropped down to second place, appearing in more than one in five surveys.
- White-plumed Honeyeaters increased during the summer study to appear in nearly 19% of surveys.
- As in Victoria, a number of introduced species made it into the top ten birds recorded at birdbaths. Along with the House Sparrow, we also had Spotted Doves recorded in nearly 15% of surveys, Common Blackbirds in nearly 11% of surveys and Common Starlings in almost 10% of surveys.
- Superb Fairy-wrens were the only small native insect-eating bird to appear on the list, where they held onto their position as the 10th most recorded bird at birdbaths.

Western Australia

Quick Stats:

In Western Australia we had 74 citizen scientists submit 470 surveys during the summer study. This built on the winter study where we had 65 citizen scientists submitting 408 surveys.



Over the winter and summer study we had a total of 82 bird species recorded at birdbaths in WA. During the winter study 50 species were recorded, whilst during the summer study we had 75 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 9. The top ten birds recorded at birdbaths in Western Australia, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	New Holland Honeyeater	32.71%	●
2	Red Wattlebird	21.96%	●
3	Brown Honeyeater	19.63%	●
4	Willie Wagtail	18.69%	●
5	Grey Fantail	11.22%	▲ 5
6	Silvereye	10.05%	▲ 1
7	Magpie-lark	9.11%	▲ 1
8	Australian Magpie	8.88%	▲ 5
9	Singing Honeyeater	8.18%	▼ 4
10	Laughing Turtle-dove*	7.24%	▼ 4

Interesting Findings:

- Similar to Victoria and South Australia, New Holland Honeyeaters were the most frequently recorded bird at birdbaths in Western Australia, appearing in nearly one third of all surveys and maintaining their number 1 spot between the two seasons.
- Red Wattlebirds, Brown Honeyeaters and Willie Wagtails also maintained their position between the two seasons as the 2nd, 3rd and 4th most commonly recorded birds at birdbaths.
- Grey Fantails and Silvereyes both increased during the summer study, appearing in nearly 12% and 10% of surveys respectively.
- WA was the only state/territory where the Laughing Turtle-dove (an introduced species from Africa) made the top ten, where it appeared in 7% of surveys. No other introduced birds were recorded in the top ten birds.

Northern Territory

Quick Stats:

In the Northern Territory we had 4 citizen scientists submit 35 surveys during the summer study. This was slightly lower than the winter study where we had 7 citizen scientists submitting 55 surveys.



Over the winter and summer study we had a total of 26 bird species recorded at birdbaths in the NT. During the winter study 19 species were recorded, whilst during the summer study we had 16 species recorded. (Bird species are rough estimates as birds recorded are still to be checked against known range).

Table 10. The top ten birds recorded at birdbaths in Northern Territory, the percentage of surveys they occurred in and how they changed from the winter survey.

Rank	Common name	% of surveys	Rank change from winter survey
1	White-plumed Honeyeater	37.04%	●
2	Zebra Finch	29.63%	▲ 2
3	Peaceful Dove	25.93%	▲ 4
4	Brown Honeyeater	14.82%	▲ 5
5	Magpie-lark	14.82%	★
6	Crested Pigeon	11.11%	▲ 7
7	Western Bowerbird	11.11%	▲ 12
8	White-headed Pigeon	11.11%	★
9	White-gaped Honeyeater	7.41%	▼ 1
10	Australian Magpie	3.70%	★

Interesting Findings:

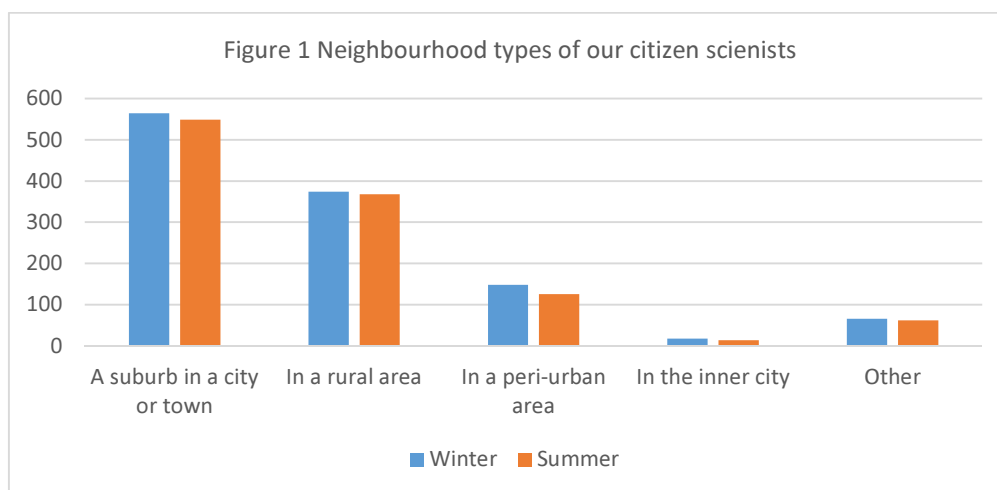
- We had a very small number of citizen scientists monitor birdbaths so the birds recorded in surveys will be strongly influenced by this small sample size.
- White-plumed Honeyeaters were the most commonly recorded bird at birdbaths during both the winter and summer studies.
- Zebra Finches, Peaceful Doves and Brown Honeyeaters appeared more frequently in the summer study compared to the winter study, increasing their position in the top ten birds recorded at birdbaths.
- New birds at the birdbath from the winter survey were Magpie-lark, White-headed Pigeon and Australian Magpies who appeared for the first time in the summer survey.
- Western Bowerbirds increased by 12 places to appear in 11% of surveys.
- We had no introduced birds recorded as part of the top ten birds at birdbaths in the Northern Territory.

Section 4. Suburban Areas versus Rural Areas

As you have seen, once we break the bird data down to state level we get a clearer picture of the types of birds appearing at birdbaths across our study area. In each state we have a mixture of large and small birds, native and introduced, aggressive and passive. Are all these birds really appearing together at the same birdbaths, or are there other factors influencing which birds visit your birdbath? To get an *even clearer* understanding of the birds visiting your birdbaths, we are now going to look at the bird data by dwelling types (or as we will refer to it in this report, neighbourhood type).

Why are we looking at the bird data by neighbourhood type? Birds can easily move around the landscape, so one of the biggest influences on whether they will visit your birdbath is what is going on at the landscape level (e.g. presence of remnant bushland or national park nearby in your neighbourhood), followed by what is going on at a more fine-scale level (e.g. the plants in your garden, presence of cats). So birds in each garden largely depend on the richness and diversity of habitat in the surrounding area. Obviously the quality of each individual garden is important, but the birds found in that garden will still be affected by the surrounding neighbourhood. If you live in a densely populated area that is very built up and has little native vegetation overall, it is very unlikely you will get smaller birds (e.g. Superb Fairy-wrens) in your garden because they cannot survive in such a landscape in the first place. So while many factors can impact on what birds visit your birdbath, where you live is a very important one.

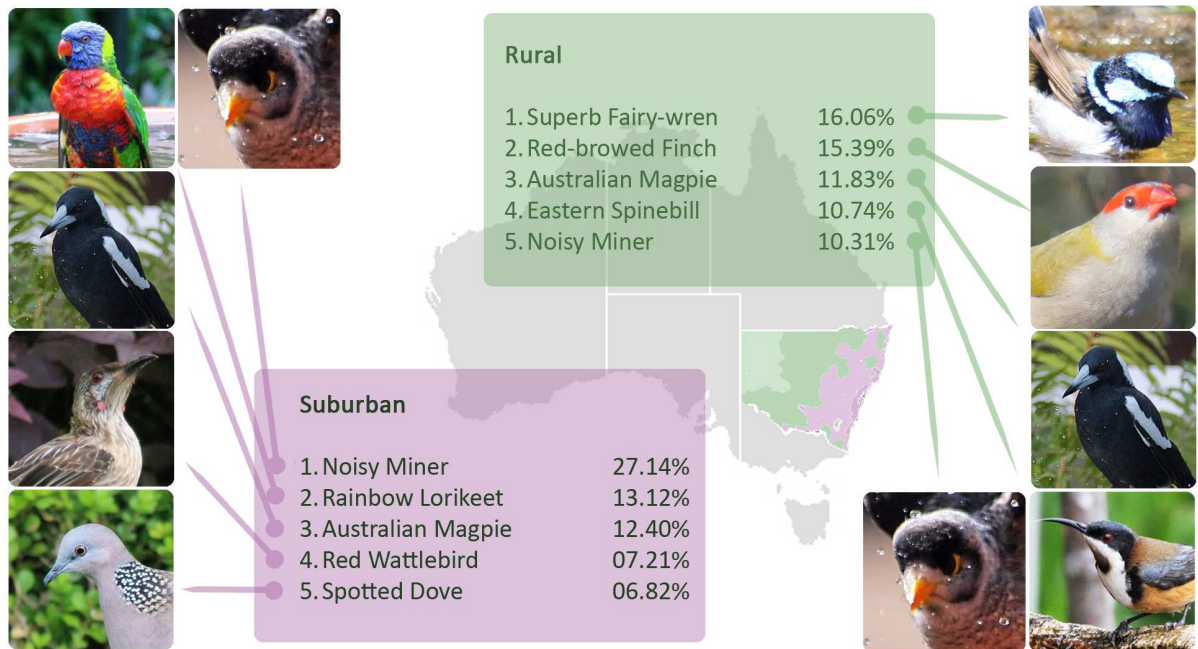
We asked you to identify your neighbourhood type (dwelling type) using the following categories: a suburb in a city or town, in the inner city, in a rural area, in a peri-urban area and others. The results are summarised in the chart below. We did this so we can explore how bird assemblages (the range of bird species seen in an area) might change depending on where you live.



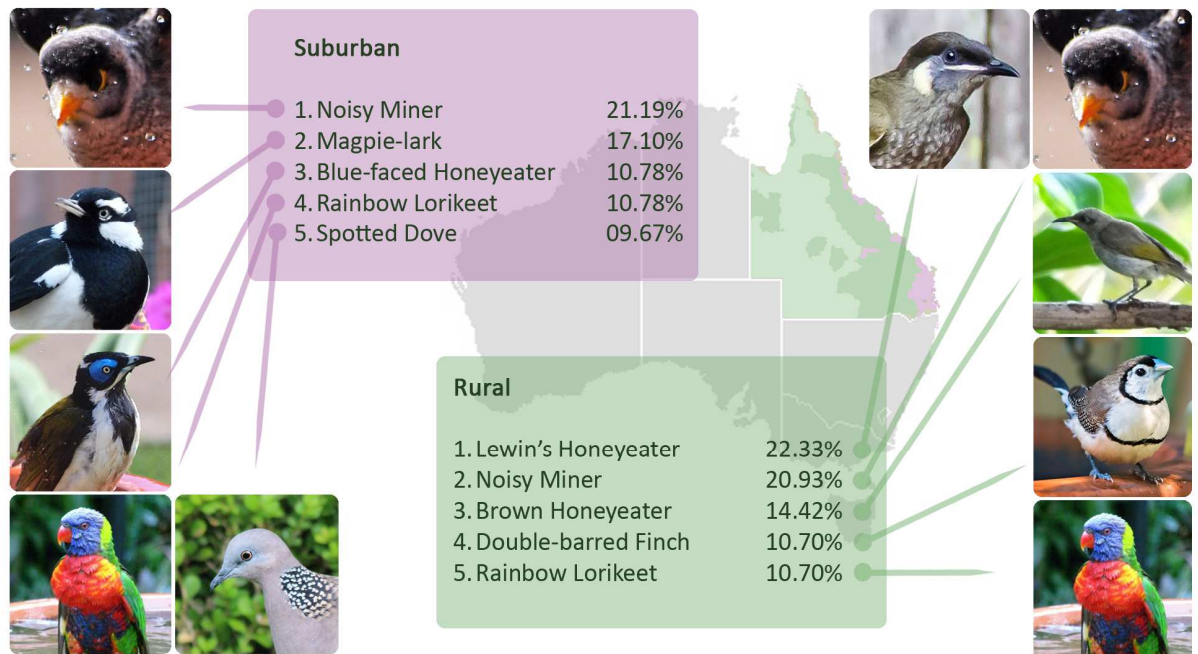
The neighbourhood types with the highest participation rates were suburban and rural areas. For five states (NSW, Victoria, Queensland, South Australia and Western Australia), we had enough data to contrast the bird species found in suburban and rural areas. Unfortunately, due to low participation rates, we are unable to look at a neighbourhood type comparison for the Australian Capital Territory, Northern Territory and Tasmania yet. (For a complete list of birds recorded in each state during winter and summer in suburban and rural areas please see appendix 2.)

Top 5 Birds by State, Suburban Vs Rural

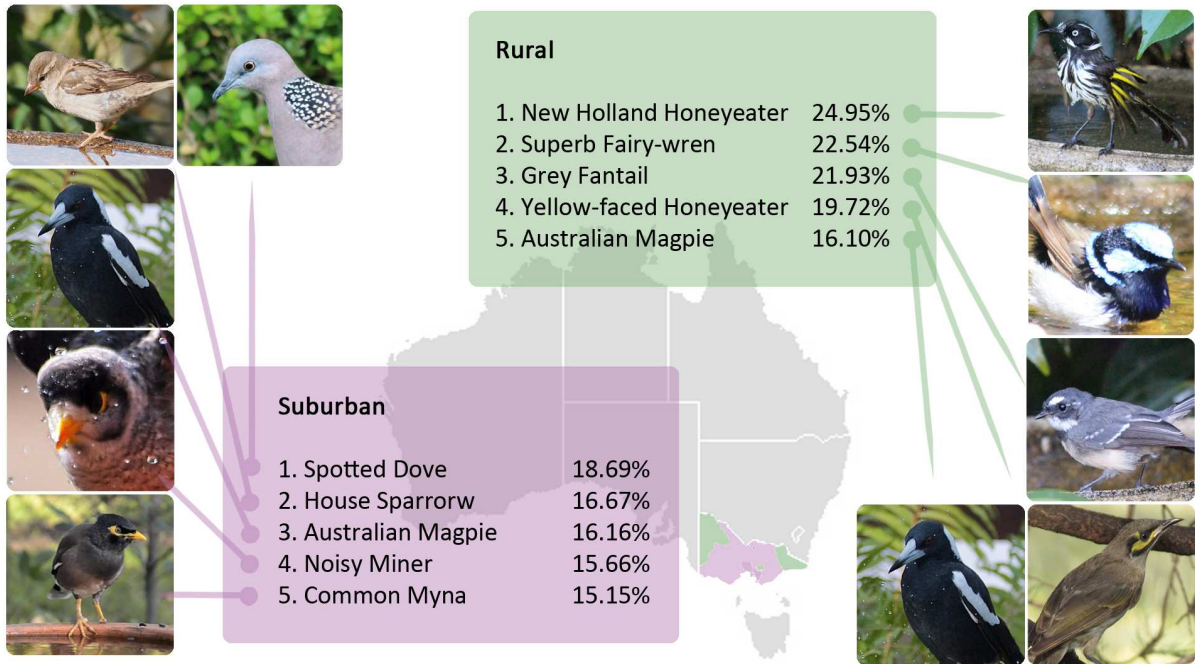
New South Wales



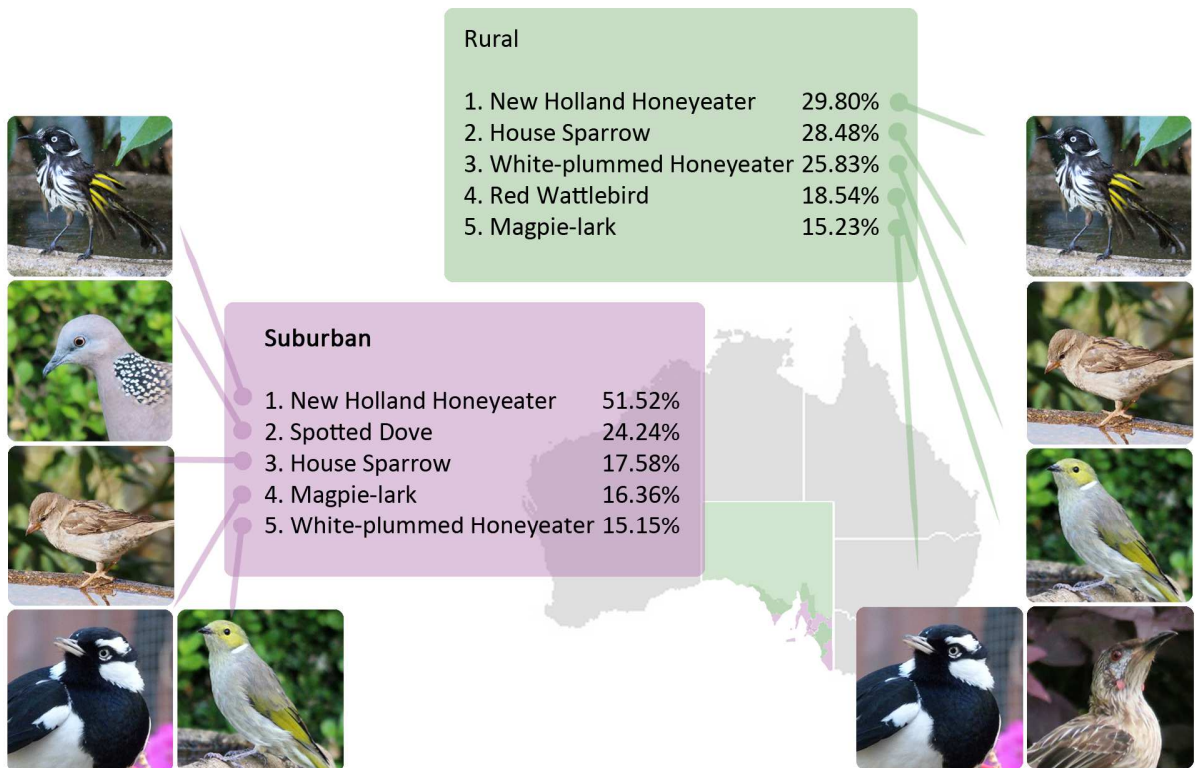
Queensland



Victoria



South Australia



Western Australia

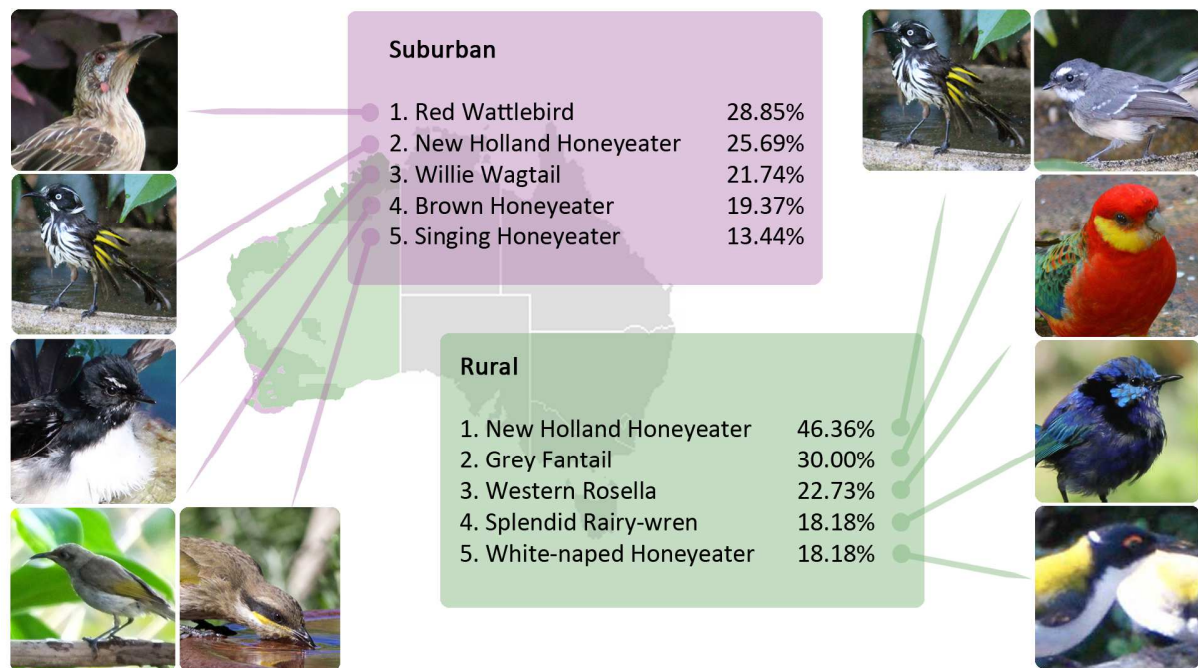


Photo credits:

Noisy Miner and Blue-faced Honeyeater photo with thanks to Ann & Ross, Magpie-lark photo with thanks to Alison, Rainbow Lorikeet photo with thanks to Linda, Spotted Dove, Superb Fairy-wren, Eastern Spinebill, New Holland Honeyeater, Grey Fantail, Willie Wagtail photos with thanks to Wanda, Lewin's Honeyeater photo with thanks to Karen, Brown Honeyeater photo with thanks to Lesley, Double-barred Finch photo with thanks to Narelle, Australian Magpie photo with thanks to Anne, Red Wattlebird photo with thanks to Helen, House Sparrow with thanks to Marg, Common Myna photo with thanks to Ben, Yellow-faced Honeyeater photo with thanks to Vicki, Singing Honeyeater photo with thanks to Julie, Western Rosella and Splendid Fairy-wren – stolen from the internet! White-naped Honeyeater photo with thanks to Jordy.

Interesting findings:

Suburban birds

In suburban areas in both Queensland and NSW we had more surveys recording the occurrence of large aggressive nectar-feeders (e.g. Noisy Miners, Rainbow Lorikeets and Blue-faced Honeyeaters) compared to rural areas. Once we leave Queensland and NSW and move down into Victoria and South Australia we can see more introduced birds appearing in the top five. Spotted Doves and House Sparrows were recorded at suburban birdbaths in these two states. Common Mynas also appear in the top five birds at suburban birdbaths in Victoria. Introduced species are by definition successful invaders and as we can see are well represented in the suburban bird communities. In Western Australia we had four honeyeaters in the top five birds most commonly recorded at suburban birdbaths: Red Wattlebirds, New Holland Honeyeaters, Brown Honeyeaters and Singing Honeyeaters.

Rural birds

In 4 of the 5 states examined, small honeyeaters were the most common birds at rural birdbaths. New Holland Honeyeaters were the top bird in Victoria, South Australia and Western Australia whilst Lewin's Honeyeaters were most common in rural Queensland. The dominance of nectar-feeders is very different from rural gardens in NSW where we had smaller birds at baths: Superb Fairy-wrens and Red-browed Finches were the top two birds most commonly recorded. Interestingly, Noisy Miners and Lewin's Honeyeaters appeared in fewer surveys in NSW compared to Queensland and we had a higher occurrence of Superb Fairy-wrens at birdbaths in rural Victoria when compared to rural NSW.

The only introduced birds in the top 5 list for rural areas were House Sparrows in South Australia.



Introduced Spotted Dove with a Double-barred Finch, photo with thanks to Wanda

Section 5. Birds at your Birdbath: some key insights

So what does it all mean? In this section, we will explore and explain some of the key trends that are starting to emerge from the Bathing Birds data. We will make reference to what we know from the scientific literature to help explain some of our findings.

The local landscape has a big influence

Overall, we found more aggressive honeyeaters, such as Noisy Miners, Rainbow Lorikeets and Blue-faced Honeyeaters, and introduced species, such as Spotted Doves and House Sparrows, at suburban birdbaths. Our findings agree with what existing literature tells us: that in suburban landscapes in



*Blue-faced Honeyeater with a Noisy Miner,
photo with thanks to Ann and Ross*

Australia, large and often aggressive honeyeaters and/or introduced birds are common. There are a range of reasons why these birds do so well, including their large size, ground-feeding habits, willingness to consume human food scraps and tendency to become tame and interactive with people when fed. They are also very tolerant of a wide variety of suburban conditions. In contrast, in rural areas smaller insectivores and honeyeaters were more common. However, in rural Queensland we still had a high occurrence of aggressive honeyeaters in surveys compared to other states. With the exception of Tasmania, we had more bird species recorded at rural birdbaths compared to suburban baths (see appendix 2)

It is commonly known that the impact of suburban development on the vegetation structure of a region is often dramatic. One study found that, pre-1900s, Superb Fairy-wrens were the most abundant bird in Sydney along with New Holland Honeyeaters, Eastern Yellow Robins and Golden Whistlers! The study concluded that these small birds have significantly declined with the urbanisation of Sydney. The modified landscape is classic of most cities and towns, consisting of a mosaic of buildings, gardens, parks and fragmented patches of original habitat. As we have seen, this can have a huge impact on the bird species that are present. The literature shows that even well-planted garden suburbs may support large-bodied native birds such as rosellas, magpies, lorikeets and Noisy Miners, but fail to attract a rich variety of common small species. Many of our citizen scientists have noticed this in their own gardens and reported back to us their frustrations at trying to encourage small birds into their gardens. A well-planted garden next to a large area of bushland may receive visits from smaller birds, but generally gardens in built up areas with little vegetation and away from remnant bush are unlikely to receive visits from smaller birds. This illustrates the primary importance of your neighbourhood in affecting what birds will visit your garden.



*Noisy Miner and a Scaly-Breasted Lorikeet,
photo with thanks to Col*

Native plants in your local landscape may have a strong influence

Suburban areas are often characterised by a high number of flowering grevilleas, banksias and eucalypts. These native plants have actively been promoted to suburban gardeners on the grounds that they are native plants and they bear nectar-rich flowers that attract native birds. Many of the cultivated grevilleas are hybrids that grow large flowers with high nectar content all year round. Hybrid grevilleas have become abundant in suburban areas as a result of plantings during the past 10-15 years, but flowering shrubs of this type are rare in the native forest. It has been suggested in the literature that the relatively consistent supply of nectar in suburban areas from winter-flowering banksias, seasonal eucalyptus and year-round flowering hybrid grevilleas is favouring aggressive honeyeaters like Rainbow Lorikeets, Noisy Miners and Red Wattlebirds. We are going to explore your garden data in more detail to see what influence vegetation might be having in rural and suburban areas.



Noisy Miners with a Red Wattlebird, photo with thanks to Chris

Noisy Miners, an extremely aggressive honeyeater, were found across all areas of NSW. In suburban areas, they are the most commonly recorded species, followed by other large species. However, whilst they were also recorded in the top 5 birds at birdbaths in rural NSW, surprisingly Superb Fairywrens, Red-browed Finches and Eastern Spinebills were recorded more frequently! This is of interest as the literature tells us presence of Noisy Miners is often related to a decrease in smaller birds.



Eastern Spinebill, photo with thanks to Wanda

While other factors may be responsible for our finding (e.g. Noisy Miners might not have been at the same birdbaths as those with small birds) the fact that we have smaller birds at birdbaths in rural NSW despite the presence of Noisy Miners may be due to the habitat preferences of Miners. Past research has found that Noisy Miners are at high densities in areas where eucalypts have become sparsely distributed and there is thinning of the tree canopy, loss of understorey plants and small patches of forest. In rural areas, there may still be denser, healthy vegetation, whilst it seems that sparse eucalypt tree cover over little or no understorey is common in suburban areas. When this favourable habitat is combined with hybrid grevilleas planted around many suburbs, providing additional food, we get extremely high

Noisy Miner densities in these areas! This means the presence of Noisy Miners in your garden *could* be driven more by your local landscape rather than the characteristics of your garden.



*Rainbow Lorikeet feeding on a Grevillea,
photo thanks to Ian*

We were interested to see that aggressive nectar-feeders (Noisy Miners, Rainbow Lorikeets, Lewin's Honeyeaters and Brown Honeyeaters) are doing particularly well in rural Queensland, a trend that held during the winter and summer studies. Lewin's Honeyeater held the top spot as the most commonly recorded bird at rural birdbaths in both the winter and summer studies. Smaller birds were recorded in rural Queensland, but did not occur very frequently, compared to rural areas in other states. For example, Superb Fairy-wrens were recorded in 4% of surveys at rural birdbaths so we can see that they were there, just in low numbers! There could be a number of reasons for this, including that surveys were conducted mainly outside of their distribution range or as a result of extensive habitat clearing in rural Queensland.

During the past 150 years, about two-thirds of all bushland in south-east Queensland has been cleared, initially for agriculture and pasture but more recently for residential development. As discussed above, the loss of remnant bushland and changes in vegetation (loss of a shrub layer) can result in the loss of small birds and an increase in aggressive honeyeaters which prefer this type of habitat. Once these honeyeaters are established, smaller birds will find it difficult to persist. We can see that the small birds that are doing well in rural Queensland are aggressive or gregarious themselves, such as Willie Wagtails, Grey Fantails and Double-barred Finches.

Across all our states, smaller birds appear to be doing better at birdbaths in rural areas than in suburban areas. Again, this trend may be influenced by local vegetation, as well as the behaviour of the birds. For example, Red-browed Finches and Double-barred Finches feed mainly on seeds (but will take insects) while Superb Fairy-wrens and Grey Fantails feed mainly on insects, indicating that they take at least part of their food from the ground. This would suggest that in rural backyards these birds can benefit from densely-planted shrubs that they shelter in, allowing them to forage on the lawn before retreating again. Superb Fairy-wrens, Brown Thornbills and Yellow-faced Honeyeaters are among the first birds to arrive when understory shrubs are planted or regenerated. When we refer to the literature we find that smaller birds in rural areas do well in neighbourhoods where there is a large overall extent of woodland habitat, streamside vegetation, and large blocks of habitat (rather than highly fragmented and modified pieces which Miners love) linked together by networks of streams or roadsides.



*Yellow-faced Honeyeater with a Silvereye, photo
with thanks to Vicki*

Birds' behaviour can influence their success

One reason why certain species of smaller birds may be reasonably common, despite the presence of aggressive larger birds, could be their gregarious nature. Superb Fairy-wrens were recorded



Superb Fairy-wren, photo with thanks to Wanda

frequently at birdbaths in rural NSW (16% of surveys) and Victoria (23% of surveys), despite the presence of aggressive larger honeyeaters in these areas. (Do bear in mind we do need to investigate our data further to see if Noisy Miners and smaller birds were co-existing in the same garden). Superb Fairy-wrens often hang out in groups consisting of a single breeding female and dominant breeding male, and up to five male helpers. Groups defend breeding territories, although during the non-breeding season adjacent groups can form temporary flocks. These smart birds have learnt to recognise Noisy Miners' alarm calls, which can help them persist in areas with Miners. A study in Canberra found that Superb Fairy-wrens that lived in areas frequented by Noisy Miners recognised their alarm calls and on hearing it would flee to cover. For this reason, as discussed earlier, these birds need densely-planted shrubs to hide in next to open areas where they can forage.

New Holland Honeyeaters are charismatic small honeyeaters that turned up during the summer study in both rural and suburban areas in 4 states: Victoria, South Australia, Tasmania and Western Australia. So what is it about these birds that is allowing them to do so well in both rural and suburban areas? Again, it is all about attitude!! New Holland Honeyeaters are nomadic birds which means that, while they do not migrate in the traditional sense, there is a core of resident birds whose numbers are occasionally increased by groups of nomadic individuals as they move through an area. New Holland Honeyeaters will often hang out in groups and will aggressively attack other birds intruding on their territory, including White-cheeked Honeyeaters, Yellow-faced Honeyeaters and Red Wattlebirds.

Red Wattlebirds, another commonly observed species at birdbaths, will move around an area in small groups, intruding at will on New Holland Honeyeater territories. While New Holland Honeyeaters cannot aggressively remove the wattlebird, they do harass them. It has been suggested in the literature that the "flitting" behaviour of New Holland Honeyeaters reduces the foraging efficiency of the intruding wattlebird. "Flitting" refers to behaviour where the New Holland Honeyeater flutters conspicuously close to an intruding Red Wattlebird as it feeds on nectar. This behaviour makes robbing territories less profitable for Red Wattlebirds compared to feeding at undefended plants. Our results seem to agree with this as (with the exception of suburban Western Australia), New Holland Honeyeaters were more commonly recorded at birdbaths compared to Red Wattlebirds.



New Holland Honeyeaters, photo with thanks to Wanda

Introduced birds in suburban areas

Introduced birds were mainly reported in suburban areas. We had the highest occurrence of introduced birds at baths in Victoria and South Australia, which indicates that the birds are doing well in the cooler southern states. Some introduced birds have become major pests and compete with native species for resources such as space, food or nest sites (e.g. the Common Myna). Some are also great nuisances to humans: nesting in and around buildings, causing mess – acidic bird droppings can eat into sandstone and other building materials – and spreading parasites such as bird mites (e.g. Common Starling and Rock Dove). Interestingly, some raptors, in particular Goshawks, have been shown to respond positively in urban areas to the extra food provided by introduced rodents and birds such as House Sparrows and Common Starlings.



The introduced Red-whiskered Bulbul with a New Holland Honeyeater, photo with thanks to Wanda

House Sparrows were recorded at rural birdbaths as well as suburban areas in Victoria and South Australia. House Sparrows will live where we live and can quickly become a nuisance. In rural areas House Sparrows have been reported to consume large quantities of grain and seed which helps keep their numbers high. In the literature it has been reported that they can deter small native birds as it has been suggested that House Sparrows are highly aggressive towards other birds and will take over the nest sites of native species.

What can I do to get smaller birds at my birdbath and in my garden?

Although the landscape surrounding your property has a major influence on the birds that will occur in your backyard and at your birdbath, there are still steps you can take to make your garden more attractive to smaller birds. The key to designing a bird-friendly garden is to create a multi-layered habitat of ground covers, small and medium shrubs (i.e. [create density](#)) and, where possible, trees that will provide food and shelter for many different species. We have put together the following guidelines to help you attract small birds into your garden.

Plant for vertical and horizontal structure: Avoid stark simplicity. Simplified garden structures and design may seem convenient but reduces the volume and variety of food and shelter for small birds.

Plant for shelter: Several shrubs close together (five or more) can form dense, protective thickets which provide great habitat for small birds. Grow rambling, light climbers in amongst medium to tall shrubs and trees, to give extra shelter and possible nesting sites.

Plant for food: Small birds eat nectar from native flowers and seeds from native grasses as well as associated insects. Mulch your garden to encourage insect life.

Plant locals: Plants that grow naturally in your area are suited to local conditions. They will provide the right food and shelter for local native birds, unlike some hybrids or plants from other parts of Australia. In addition they are less likely to become weeds in adjacent bushland areas. If you can't get locally native plants, general natives are the next best thing. Talk to your local council to get a plant list for your region and the location of your nearest local native nursery.

Create diversity: Small birds use ground covers, grasses and small, medium and large shrubs.

Plant below trees: A dense understorey is less attractive to Noisy Miners but enjoyed by smaller birds.

Plant for seasonality: Different plants will flower and fruit at different times of the year. Ensure there are always food sources available in your garden by looking at the flowering and fruiting times of potential plants, though avoid having lots of nectar-producing plants flowering continually.

Remove exotic species that produce berries: Over time, replace fruiting plants like Cotoneaster that attract Currawongs.

Reduce lawn area: Replace unused lawn areas with garden beds or native grasses that produce attractive seed heads, which provide food for finches and other seed-eaters such as Crimson Rosellas. Some lawn is not a bad thing though – so you don't have to get rid of it all.

Use small gardens effectively: With limited space, it is better to plant several plants of the same type rather than only one of several types of different plants.

Design for formality or informality: A variety of Australian native plants can be planted to create a formal garden or a bush-like garden – whatever you prefer! Most native plants respond very well to pruning. In fact pruning helps create the all-important density that small native birds need.

Provide water: Our Bathing Birds study has shown just how important birdbaths are to a huge range of our bird life. Whilst we are still analysing the data, we would suggest the following:

- **Use a range of birdbaths** – try saucers on the ground or hanging baths along with the common pedestal bath
- **Place the bath very near to native plants (shrubs or trees)**
- **Keep the water clean (ideally change water daily)**
- **Locate the birdbath away from dogs and cats**



A Grey Fantail, a Silveryeye and a Superb Fairy-wren, photo with thanks to Janet

Section 6. Conclusions

Our report has illustrated how the birds at birdbaths and in gardens will largely depend on the richness and diversity of the habitat in the surrounding areas (the landscape level). While the quality of each individual garden is obviously important, that garden must still draw heavily from its surroundings. The reliance of gardens on their surroundings for a greater diversity of birdlife means that the retention of surviving pockets of natural habitat in rural areas and even in suburbs is vital. We plan to analyse how your garden habitats and characteristics can influence what birds are in your garden and at your birdbath (keeping in mind your neighbourhood type).

A number of you were also interested to see if rainfall has an impact on the birds visiting birdbaths. We tied the data back to rainfall statistics from the Bureau of Meteorology for both surveys, however the results were inconclusive. This is a very complicated question and we will need to run the study over multiple seasons to really understand the impact of rain. We do not yet have enough data to draw any conclusions, but as we run further studies we will continue gathering data on rainfall to help us build a picture of its impact. We are also going to investigate further how the presence of dominant species may influence other species, for example is the presence of Noisy Miners at your birdbath deterring smaller birds from visiting? So still lots left to do!



Superb Fairy-wren, photo with thanks to Wanda

As this report has shown, the bird data that you collected is extremely valuable and adds to our understanding of birdbath use and the factors that influence presence of birds in our gardens. In addition the study has demonstrated what an amazing resource citizen scientists are! Almost any project that seeks to collect large volumes of field data over a wide geographical area can only succeed with the help of citizen scientists. You should be very proud of yourselves as you did a great job and we look forward to working with you all again on our future projects.

Acknowledgments

Thank you again for all your hard work. We really hope you enjoyed reading this report and are inspired to keep working as a citizen scientist with us!

A big thank you to everyone who submitted photos during the Bathing Birds study and to our Facebook page at www.facebook.com/bathingbirds. As you have seen, they really added to the study!

A special thanks to Kirsten Proft for her advice and comments on this report and to Wanda Optland for all her amazing photos.

To Bill Coleman for customising the ALA web portal, building a data warehousing solution and providing graphics and IT support throughout the project.