

Aussie Backyard Bird Count 2016 Results:

Wingecarribee Shire Council

Parrot Package

birds are in our nature



BirdLife Australia

BirdLife Australia (Royal Australasian Ornithologist Union) was founded in 1901 and works to conserve native birds and biological diversity in Australasia and Antarctica, through the study and management of birds and their habitats, and the education and involvement of the community.

BirdLife Australia produces a range of publications, including *Emu*, a quarterly scientific journal; *Australian Birdlife*, a quarterly magazine for all members; *Conservation Statements*; *BirdLife Australia Monographs*; the *BirdLife Australia Report series*; and the *Handbook of Australian, New Zealand and Antarctic Birds*. It also maintains a comprehensive ornithological library and several scientific databases covering bird distribution and biology.

Membership of BirdLife Australia is open to anyone interested in birds and their habitats, and concerned about the future of our avifauna. For further information about membership, subscriptions and database access, contact

BirdLife Australia

60 Leicester Street, Suite 2-05

Carlton VIC 3053

Australia

Tel: (Australia): (03) 9347 0757

Fax: (03) 9347 9323

(Overseas): +613 9347 0757

Fax: +613 9347 9323

E-mail: mail@birdlife.org.au

© BirdLife Australia

This report is copyright. Apart from any fair dealings for the purposes of private study, research, criticism, or review as permitted under the Copyright Act, and as outlined in the Terms and Conditions, no part may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without prior written permission from BirdLife Australia. Results from the data analysis and the provided raw data shall not be provided to third parties and raw data is not permitted to be published. Publications where the data analysis or findings of this report are included in, or which utilise the raw data, must properly acknowledge BirdLife Australia as the data source. All enquiries to BirdLife Australia.

Recommended citation:

Adams, A.L. 2016. Aussie Backyard Bird Count 2016 results: Wingecarribee Shire Council. Unpublished report for the Wingecarribee Shire Council.

Disclaimers:

This publication may be of assistance to the purchaser and every effort has been undertaken to ensure that the information presented within is accurate. BirdLife Australia does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error or other consequences that may arise from you relying on any information in this report.

This report is prepared without prejudice to any governmental or council applications or activities. The results published in this report are reflective only of the trends during National Bird Week as submitted by the public. Trends described in the report may therefore not be a true representative of actual bird trends within the area.

Published by BirdLife Australia, Suite 2-05, 60 Leicester Street, Carlton, Victoria 3053, Australia.

This report was prepared by: Amy Adams.

birds are in our nature

Contents

Introduction	4
2016 Aussie Backyard Bird Count Statistics	5
Distribution Map.....	8
Species List: Least Common	9
Species List: Most Common	9
Introduced Species	10
Native Species of Management Concern.....	12
Data Limitations.....	15
What Birds in Backyards (BIBY) Can Offer.....	16
References	17

Introduction

Aussie Backyard Bird Count (ABBC)

In 2014, as part of BirdLife Australia's National Bird Week celebrations, BirdLife Australia ran the first ever Aussie Backyard Bird Count — now one of the largest citizen science projects of this nature in Australia.

The Aussie Backyard Bird Count provides an opportunity for everyone — from school children, senior citizens, families and community groups — to become citizen scientists for one week every October. The data collected by these citizen scientists plays a vital role in providing important information to BirdLife Australia and increases our understanding of Australian bird species that live where people live. The Aussie Backyard Bird Count also helps raise the profile of bird species throughout Australia, highlighting the importance of these species and promoting a national passion for Australian birds.

Each year this natural passion is confirmed, with the Aussie Backyard Bird Count attracting significant interest from the general public eager to be involved and help contribute to our growing knowledge of Australian birds. Public involvement has tripled in the three years the Aussie Backyard Bird Count has run, with the number of birds counted nearly doubling. Additionally, involvement by local councils increases year-on-year with more bird-focused events being held during bird week, increasing the awareness and importance of local birds within their communities. And most recently with the release of lesson plans, a record number of schools took part in 2016 encouraging students to not only participate at school but also at home.

The national focus on birds is extremely important with data showing Australian backyards have been shrinking since the 1990s, and populations of some of our most familiar birds like the Laughing Kookaburra, have also declined. Results from the 2014-2016 Aussie Backyard Bird Counts show that Australian backyards — in all their shapes and sizes — continue to attract a range of birds, giving us hope that even as the iconic Aussie backyard shrinks, many native birds can and do remain. With growing national and international concern for the welfare of these iconic birds, citizen science projects such as the ABBC can help provide an insight into how Aussie birds are faring and results can help formulate subsequent management decisions.

Birds in Backyards (BIBY)

In 2000, 20 per cent of Australia's bird species were assessed as being either Threatened or Near Threatened in *The Action Plan for Australian Birds*. The 2006 World Wildlife Fund's report to the Nairobi conference on climate change predicted that 72 per cent of rainforest bird species in north-east Australia could become extinct if global warming continues unchecked. These are just two science-based messages that many of Australia's bird species are in danger. For those of us who love and value birds, these figures are appalling. However, for many in the general community they have little meaning. The Birds in Backyards (BIBY) program is a research, education and conservation initiative which was conceived and designed primarily in an effort to make these potential bird losses meaningful to the 85 per cent of Australians living in urban and regional areas, as well as gathering data to help clarify the issues. By involving local communities and citizen scientists, the general public are helping to undertake scientific research to determine trends in bird diversity and distribution

in backyards, gardens, parks and other public urban areas where the research outputs will help contribute to developing and implementing conservation strategies.

2016 Aussie Backyard Bird Count Statistics

The following statistics relate to the Wingecarribee Shire Council region during the Aussie Backyard Bird Count that ran from the 17th to 23rd October 2016:

- 185 observers participated in the bird count, submitting 294 checklists
- Submitted checklists ranged from between 1 and 8 per registered user (average of 2.4 per registered user)
- The combined duration that observers surveyed over was 90 hours and 55 minutes
- The number of birds recorded ranged from 1 to 311 per registered user, with an average of 53 birds recorded per registered user
- A total of 6,482 individual birds were observed and recorded during the week
- 132 bird species were recorded (Table 1, Figure 1)
- The reporting rate for species (percentage of surveys a species was detected in) ranged from 73.81% to 0.34% (Table 1). Species which had lots of individuals detected but were associated with a low reporting rate indicates that multiple birds were detected within single surveys (i.e. seen in large flocks).

Table 1: The complete species list, number of individuals observed and reporting rate within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count.

Bird Species	Count	Reporting rate (%)	Bird Species	Count	Reporting rate (%)
Crimson Rosella	807	73.81	Australian Raven	144	26.53
Australian Magpie	598	57.14	Superb Fairy-wren	134	16.33
Sulphur-crested Cockatoo	438	41.5	House Sparrow*	109	5.78
Noisy Miner	369	31.29	Common Blackbird*	100	15.31
Australian King-Parrot	275	34.69	Little Corella	93	9.18
Pied Currawong	271	36.39	Common Starling*	92	7.82
Common Myna*	268	20.07	Laughing Kookaburra	91	18.03
Galah	228	22.45	Crested Pigeon	87	14.63
Magpie-lark	203	31.29	Welcome Swallow	86	12.59
Rainbow Lorikeet	201	13.27	Satin Bowerbird	75	14.63
Australian Wood Duck	180	13.27	Eastern Spinebill	71	12.59
Eastern Rosella	179	23.13	Little Raven	67	8.84
Red Wattlebird	153	25.17	Willie Wagtail	64	8.5

Bird Species	Count	Reporting rate (%)	Bird Species	Count	Reporting rate (%)
Long-billed Corella	56	4.08	Pallid Cuckoo	7	0.34
Red-browed Finch	49	3.74	Spotted Dove*	7	1.36
Yellow-faced Honeyeater	49	8.16	Tawny Frogmouth	7	0.68
Brown Thornbill	47	5.44	Tree Martin	7	1.02
Grey Fantail	38	7.14	Chestnut Teal	6	0.68
Silvereye	37	3.06	Chestnut-rumped Heathwren	6	0.34
Pacific Black Duck	36	5.44	Golden-headed Cisticola	6	0.68
White-faced Heron	36	5.78	Rufous Whistler	6	1.02
Yellow-tailed Black-Cockatoo	36	4.42	Satin Flycatcher	6	1.02
Grey Butcherbird	35	9.18	Striated Thornbill	6	1.02
Eastern Koel	32	6.12	Olive-backed Oriole	5	1.7
Spotted Pardalote	32	6.46	Purple Swamphen	5	1.02
Masked Lapwing	31	3.4	Black Swan	4	0.68
Wonga Pigeon	29	1.7	Channel-billed Cuckoo	4	1.36
Grey Shrike-thrush	27	6.12	Crescent Honeyeater	4	0.68
Jacky Winter	27	1.36	Dollarbird	4	0.68
White-winged Chough	26	2.38	Grey Teal	4	0.34
White-browed Scrubwren	24	3.74	Topknot Pigeon	4	1.02
Eastern Whipbird	19	4.08	Yellow-rumped Thornbill	4	1.02
Little Wattlebird	19	2.38	Zebra Finch	4	0.34
Yellow Thornbill	19	1.02	Double-barred Finch	3	0.68
Dusky Woodswallow (Vul)	16	0.68	European Goldfinch*	3	0.34
Gang-gang Cockatoo (Vul)	16	2.04	Golden Whistler	3	1.02
White-throated Treecreeper	16	3.74	Noisy Friarbird	3	0.68
Black-faced Cuckoo-shrike	15	4.08	Pied Butcherbird	3	1.02
Striated Pardalote	15	4.42	Torresian Crow	3	0.34
Lewin's Honeyeater	13	2.38	Black Kite	2	0.34
Australian Reed-Warbler	12	1.02	Blue-faced Honeyeater	2	0.34
Brown Gerygone	12	1.7	Brown Treecreeper (Vul)	2	0.68
Cockatiel	12	0.68	Buff-rumped Thornbill	2	0.68
Common Greenfinch*	11	1.36	Cicadabird	2	0.34
Eastern Yellow Robin	11	3.06	Common Bronzewing	2	0.68
Green Catbird	11	2.04	Dusky Moorhen	2	0.68
Red-capped Plover	10	0.34	Fan-tailed Cuckoo	2	0.68
Sacred Kingfisher	9	2.72	Leaden Flycatcher	2	0.34
Superb Lyrebird	8	1.7	New Holland Honeyeater	2	0.68
Australian White Ibis	7	1.02	Pied Cormorant	2	0.68
Glossy Black-Cockatoo (Vul)	7	1.02	Scarlet Honeyeater	2	0.34
Grey Currawong	7	1.36	Southern Boobook	2	0.68
Musk Lorikeet	7	0.34	Varied Sittella (Vul)	2	0.34

birds are in our nature

Bird Species	Count	Reporting rate (%)	Bird Species	Count	Reporting rate (%)
White-headed Pigeon	2	0.68	Hooded Robin	1	0.34
White-throated Gerygone	2	0.68	Horsfield's Bronze-Cuckoo	1	0.34
Australasian Grebe	1	0.34	Latham's Snipe	1	0.34
Australian Pelican	1	0.34	Little Black Cormorant	1	0.34
Bassian Thrush	1	0.34	Little Pied Cormorant	1	0.34
Bell Miner	1	0.34	Rockwarbler	1	0.34
Black-shouldered Kite	1	0.34	Shining Bronze-Cuckoo	1	0.34
Brown Falcon	1	0.34	Square-tailed Kite (Vul)	1	0.34
Brown-headed Honeyeater	1	0.34	Swamp Harrier	1	0.34
Eurasian Coot	1	0.34	White-eared Honeyeater	1	0.34
Eurasian Skylark*	1	0.34	White-necked Heron	1	0.34
Great Crested Grebe	1	0.34	White-plumed Honeyeater	1	0.34
Hardhead	1	0.34	Yellow-throated Scrubwren	1	0.34

* Introduced species; Vul = Vulnerable (BirdLife Australia, 2016a; NSW Government, 2016).

Distribution Map

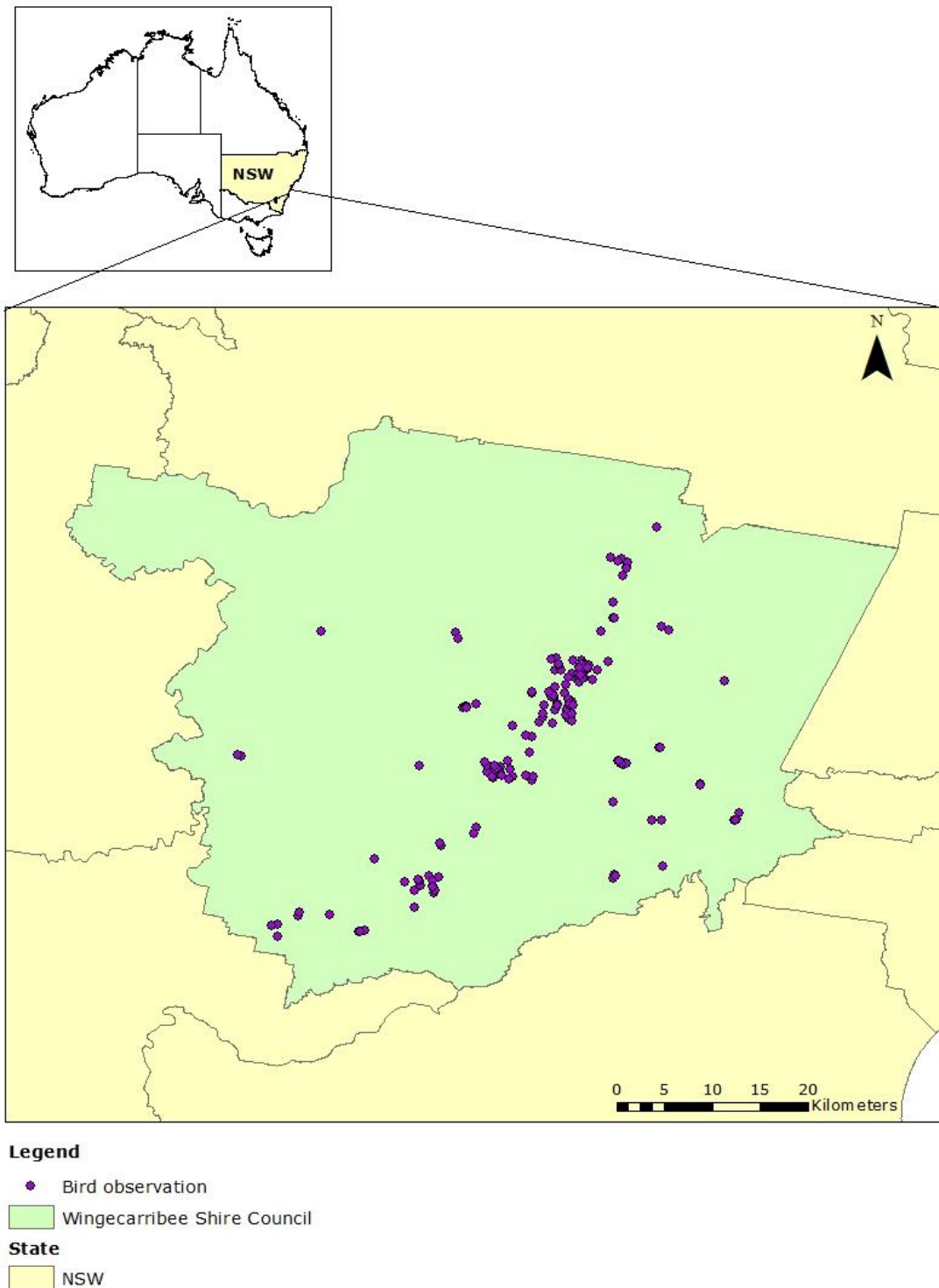


Figure 1: Bird observations recorded within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count. Bird observations that were recorded in a single survey overlap due to having the same GPS co-ordinates.

Species List: Least Common

The least commonly observed bird species recorded within the Wingecarribee Shire Council boundary all corresponded to a single observation and included:

- Australasian Grebe
- Australian Pelican
- Bassian Thrush
- Bell Miner
- Black-shouldered Kite
- Brown Falcon
- Brown-headed Honeyeater
- Eurasian Coot
- Eurasian Skylark*
- Great Crested Grebe
- Hardhead
- Hooded Robin
- Horsfield's Bronze-cuckoo
- Latham's Snipe
- Little Black Cormorant
- Little Pied Cormorant
- Rock Warbler
- Shining Bronze-cuckoo
- Square-tailed Kite (Vul)
- Swamp Harrier
- White-eared Honeyeater
- White-necked Heron
- White-plumed Honeyeater
- Yellow-throated Scrubwren

Of the 24 bird species corresponding to a single observation, one is an introduced species (the Eurasian Skylark). Of the other 23 native Australian species, all but one species have secure populations. The Square-tailed Kite however is listed as Vulnerable in New South Wales. The threatened status likely accounts for the single observation for this species. The behaviours and habitats of the nine water bird species and the four raptor species are also likely to be responsible for the single observations of these species, especially if the majority of surveys are occurring in people's backyards.

Species List: Most Common

The ten most commonly observed bird species recorded within the Wingecarribee Shire Council boundaries ranged from 201 to 807 individuals and included both native and introduced species (Figure 2). All of the species are considered to have secure populations within New South Wales.

Six of the ten most commonly counted species nationwide were also amongst the ten most frequently counted species in Wingecarribee Shire Council. The top three species counted within New South Wales during bird week were also amongst the top ten species detected within the Wingecarribee Shire Council: the Rainbow Lorikeet, Noisy Miner and Sulphur-crested Cockatoo.

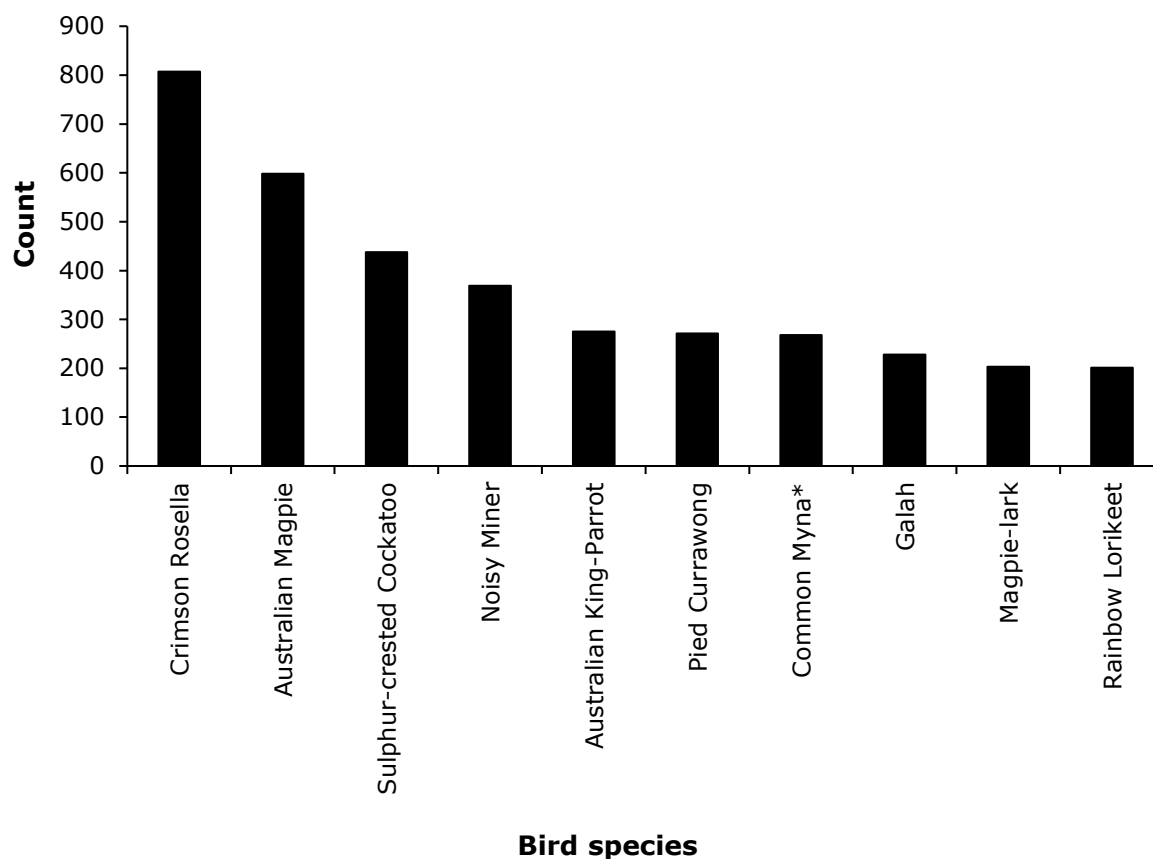
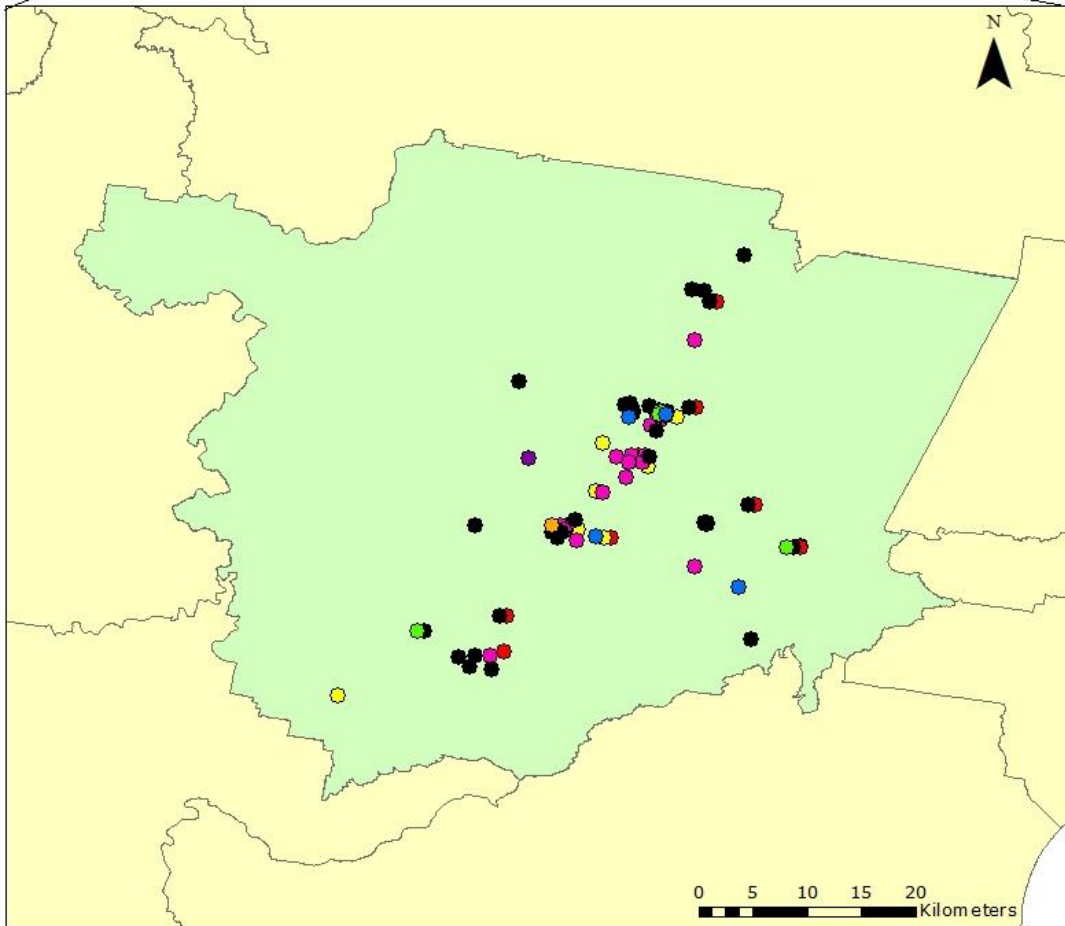
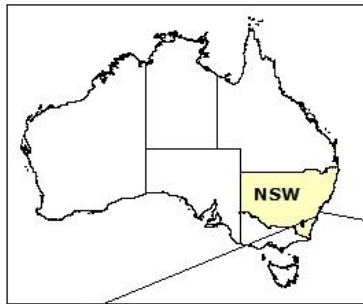


Figure 2: The ten most commonly observed bird species within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count. * indicates introduced species.

Introduced Species

Eight introduced bird species were observed and recorded within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count (Figure 3; Table 2). All eight introduced species overlap in their distribution, however the European Goldfinch and Eurasian Skylark were only recorded in one survey. Introduced species were observed largely throughout the central region and are generally absent from the Yerrinbool, North West and South West Districts (Figure 3). The Balaclava, Bowral, Burradoo and Moss Vale regions correspond with the highest variety of introduced species (Figure 3). The Common Blackbird had the widest distribution throughout the region (Figure 3).

The high bird count relative to surveys conducted indicates that observers encounter multiple individuals either throughout the duration of the survey period or all together (e.g. in a flock; Table 2).



Legend

- | | | | |
|---------------------------|---|---|---|
| Introduced species | <ul style="list-style-type: none"> ● Eurasian Skylark ● Common Blackbird ● Common Greenfinch ● Common Myna ● Common Starling | <ul style="list-style-type: none"> ● European Goldfinch ● House Sparrow ● Spotted Dove | <ul style="list-style-type: none"> ■ Wingecarribee Shire Council ■ State ■ NSW |
|---------------------------|---|---|---|

Figure 3: Distribution of the eight introduced bird species recorded within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count. Bird observations that were recorded in a single survey overlap due to having the same GPS co-ordinates.

Table 2: Survey statistics for the introduced bird species recorded within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count.

Species	Bird Count	Proportion of total count (%)	Number of surveys detected in	Reporting rate (%)
Common Myna	268	4.13	59	20.07
House Sparrow	109	1.68	17	5.78
Common Blackbird	100	1.54	45	15.31
Common Starling	92	1.41	23	7.82
Common Greenfinch	11	0.17	4	1.36
Spotted Dove	7	0.11	4	1.36
European Goldfinch	3	0.05	1	0.34
Eurasian Skylark	1	0.02	1	0.34

Native Species of Management Concern

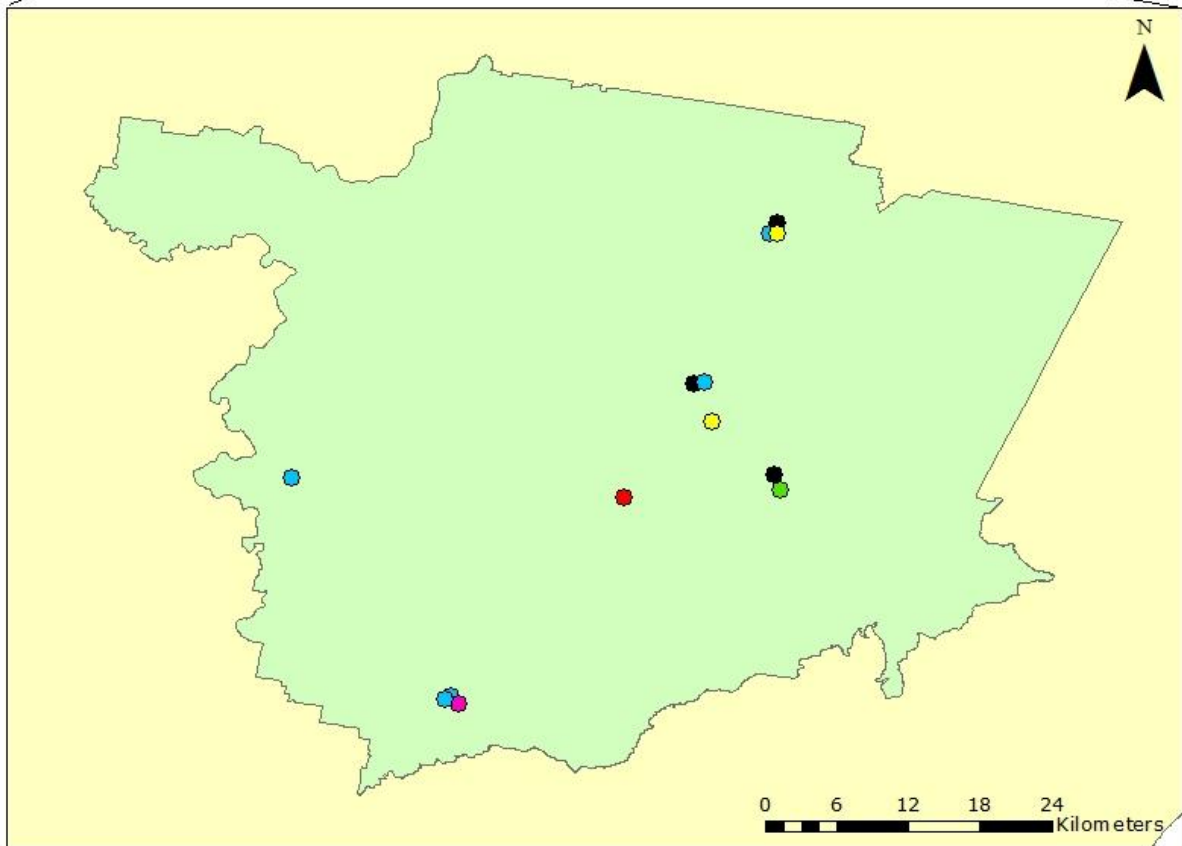
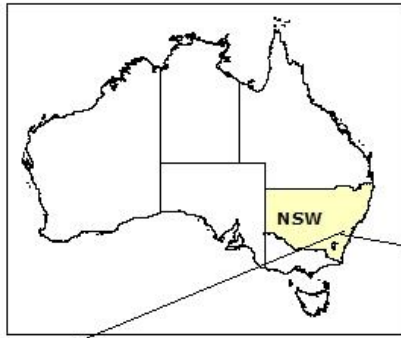
Numerous species of Australian parrots are threatened in Australia. This includes Glossy-black and Gang-gang Cockatoos which are listed as Vulnerable in New South Wales (BirdLife Australia, 2016a; NSW Government, 2016). Across Australia, each species of parrot faces its own set of conservation challenges. However, the majority of parrot species are experiencing population declines due to the lack of reliable food access and suitable nesting sites, particularly tree hollows which parrots are dependent on especially for successful breeding. Habitat loss and modification is causing a decline in the number of tree hollows available for threatened parrot species to nest in and the hollows that do remain are fiercely competed over and which are often won and used by the more aggressive bird species (e.g. Crimson Rosellas, Galahs, starlings) and marsupials (BirdLife Australia, 2016b). Without a suitably sized tree hollow, parrots are unable to breed during the breeding season, failing to replenish the population. Seven Glossy Black-cockatoos were recorded across three surveys located in Hill Top and Bowral while sixteen Gang-gang Cockatoos were recorded in six surveys located in the regions of Hill Top, Wingello, Bowral and Canyonleigh (Figure 4).

A large proportion of Australia's woodlands have been cleared resulting in many woodland-dependent bird species experiencing population declines resulting in species becoming threatened (BirdLife Australia, 2016b). The temperate south-eastern regions of Australia have experienced the largest number of woodland species declines. In response to the documented declines in woodland bird species, BirdLife Australia has implemented the *Woodland Birds for Biodiversity Project* to enhance the conservation of declining and threatened woodland bird species. This project builds on the recovery efforts of the Critically Endangered Regent Honeyeater which has been the focus of long-term intensive recovery initiatives by BirdLife Australia and due to their high profile, act as a flagship species for the conservation of other threatened woodland bird species such as the Dusky Woodswallow, Brown Treecreepers and Varied Sittella both of which are listed as Vulnerable in New South Wales (BirdLife Australia, 2016b; NSW Government, 2016). The *Woodland Birds for Biodiversity Project* aims to:

- Monitor habitat restoration activities and bird populations to determine priority habitat sites and population trends
- Identify and monitor climate change impacts on woodland habitat and woodland-dependent bird species
- Improve the management and protection of woodland habitat on private and public land
- Restoration and revegetation of areas to improve the amount of available habitat and connectivity of this habitat
- Community education and involvement in survey efforts and monitoring

Sixteen Dusky Woodswallows were recorded in two surveys in Moss Vale and Bowral (Figure 4). Two Brown Treecreepers were observed by two participants in Hill Top and Bowral (Figure 4). Two Varied Sittellas were observed in one survey in Glenquarry (Figure 4).

A number of Australian raptor species, including owl species, are threatened due to habitat destruction and fragmentation, loss of nesting hollows and declining prey availability. One threatened diurnal raptor, the Square-tailed Kite, was observed in Wingello (Figure 4).



Legend

- | | |
|--|--|
| Threatened species | Wingecarribee Shire Council |
| Brown Treecreeper | State |
| Dusky Woodswallow | NSW |
| Gang-gang Cockatoo | |
| Glossy Black-Cockatoo | |
| Square-tailed Kite | |
| Varied Sittella | |

Figure 4: Distribution of the Vulnerable bird species within the Wingecarribee Shire Council boundaries during the 2016 Aussie Backyard Bird Count. Bird observations that were recorded in a single survey overlap due to having the same GPS co-ordinates.

Data Limitations

An annual backyard bird survey occurring in gardens across Australia has the potential to be an extremely valuable monitoring tool for Australian bird species and communities. Over years, data collected from regions can be used to detect population trends for target species (both native and introduced), for different species guilds and for bird communities within specific areas. For example, detection of regional and/or national changes in the abundance and distribution of species especially those of management concern, such as downward trends of native species, or upward trends of pest species. Subsequent management actions can therefore be implemented in response to the survey results.

However, some caution must be taken when interpreting the results from such a survey. The backyards that are surveyed will not constitute a random selection of backyards across Australia. Previous analyses of surveys of a similar nature have suggested that participants are more likely to be interested in birds and have more 'bird-friendly' gardens than the country as a whole (Dunn et al., 2005; Spurr, 2012). If this is correct, the number of birds reported from surveyed backyards could be higher than the average number present within a typical Australian backyard. The number of counted birds may also be over-inflated due to the potential for observers to count the same bird/s multiple times during their 20 minute survey period. Furthermore, some regions may have small sample sizes, with some areas being under-represented (or not represented at all) which will influence data interpretation and population trends within an area and across the country. Additionally, bird species that are more likely to utilise habitat associated with backyard gardens are more likely to be recorded, thus represented, in the dataset than species that are specialised to other habitat types such as forests or water bodies. The lack of presence of these species within the dataset does not imply low abundance or scarce distribution but rather their specific habitat was not represented in the survey. Survey results are also subject to temporal biases and only provide information of bird communities within a one-week period during spring. Hence, the Aussie Backyard Bird Count survey can be said to monitor population and distribution trends within the backyards of participants during the particular time period but results may not necessarily be applicable to Australia as a whole, or the entire region specifically being analysed. Furthermore, the GPS co-ordinates of surveys may not be completely accurate due to user error when selecting their location through the app, as the placement of the survey flag may not precisely fall on their true location. However, the submitted co-ordinates will provide the general location where the survey occurred.

The skill and experience of observers conducting backyard surveys in correctly identifying birds will vary and also influence the validity of the survey results. The ABBC app provided the first instance of minimising incorrect species identifications by clearly indicating to the user if a species that they had selected to include on their checklist was "unlikely based on survey location". Once the survey data was collected in the BirdLife Australia office, data was further vetted based on species distribution information. While every effort was undertaken to vet the survey data of mis-identified birds, it is still probable that some mis-identifications will be included in the dataset and caution is needed when analysing the results. However, a previous study has implied that identification of species occurring in participants backyards are more likely to be correct as these species are familiar to the observer and are likely to be relatively common species (Cannon, 1999).

What Birds in Backyards (BIBY) Can Offer

We are fortunate in Australia to have such a diverse and colourful range of native birds that live amongst us in the urban landscape. These birds provide an opportunity for people to appreciate and connect with wildlife on a daily basis and increasingly, research is linking biodiversity with a person's quality of life. In Britain, bird life is so valued that the UK government uses information about their wild bird as a measure of the health of the environment as a whole. This environmental indicator is published alongside more familiar economic and social indicators and reinforces the point that the maintenance of biodiversity is a key part of sustainability.

But our urban bird communities in Australia are changing. Small birds, like Spinebills and Fairy-wrens, were once more common in parks or gardens are now disappearing and being replaced by large and aggressive species like the Noisy Miner and Pied Currawong. Changes in our gardening practices and increasing urbanisation seem to be largely responsible for this – the simplification of our gardens and the loss of shrubs has removed important food, shelter and nesting locations. If vegetation in gardens could be managed to promote a diversity of native bird species, it will provide a valuable secondary habitat for conserving native bird populations, particularly as natural habitat continues to be destroyed. In the urban landscape, engaging with the wider community is necessary in order to turn around this habitat loss and provides a unique opportunity to engage large numbers of the general community actively in the conservation of biodiversity.

Birds in Backyards encourages people to learn in their own space in order to establish an initial connection with the natural world in a somewhat unnatural setting. It is not simply about providing people with information about birds in their local area but it is about building on that initial interest and encouraging people to learn more and then take action for birds. The Birds in Backyards Program can work with your council to provide resources or collaborate on projects. For example:

- Hard copy materials such as A4 'Backyard Birds of NSW' posters (that can be made available in 6 languages), bookmarks, bird trading cards, gardening advice brochures
- Train the trainer workshops and associated materials or direct public workshops
- Ongoing monitoring programs for participants via our Backyard Bird surveys with feedback provided
- Regional plant lists
- Children's engagement activities and school resources
- Evaluations

For more information, please contact Birds in Backyards Program Manager Dr. Monica Awasthy - monica.awasthy@birdlife.org.au.

References

- BirdLife Australia (2016a). *Working list of Australian birds v2*. Retrieved from <http://birdlife.org.au/conservation/science/taxonomy> (accessed 30/11/2016).
- BirdLife Australia (2016b). *Projects*. Retrieved from <http://birdlife.org.au/projects> (accessed 12/01/2017).
- Cannon, A. (1999). The significance of private gardens for bird conservation. *Bird Conservation International*, **9**: 287-297.
- Dunn, E.H., Francis, C.M., Blancher, P.J., Drennan, S.R., Howe, M.A., Lepage, D., Robbins, C.S., Rosenberg, K.V., Sauer, JR., Smith, K.G. (2005). Enhancing the scientific value of the Christmas bird count. *The Auk*, **122**: 338-346.
- NSW Government (2016). *Threatened Species*. Retrieved from <http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species> (accessed 30/11/2016).
- Spurr, E.B. (2012). New Zealand garden bird survey – analysis of the first four years. *The New Zealand Journal of Ecology*, **36**: 1-13.