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# A Review of GARDEN BIRD WATCH (2015–2019)

Low Bing Wen
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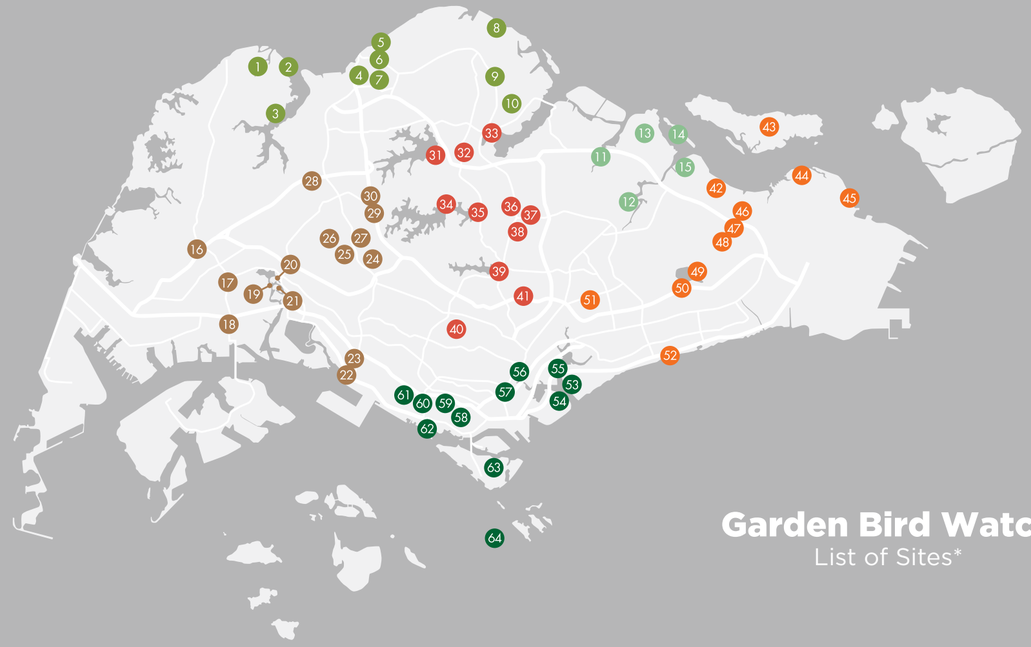
Linda Goh
Kenneth Er



# Garden Bird Watch

List of Sites*

### North

1. Sungei Buloh Wetland Reserve
2. Sungei Buloh Wetland Reserve Coastal and Forest Trails
3. Kranji Marshes
4. Marsiling Park (formerly Woodlands Town Garden)
5. Woodlands Waterfront Park
6. Admiralty Park
7. Woodlands Town Park East
8. Sembawang Park
9. Yishun Neighbourhood Park
10. Yishun Park

### Northeast

11. Sengkang Riverside Park
12. Punggol Park
13. Punggol Waterway Park
14. Coney Island Park
15. Lorong Halus Wetland

### West

16. Jurong Eco-Garden
17. Jurong Central Park
18. Jurong Hill Park
19. Lakeside Garden (formerly Jurong Lake Park)
20. Chinese Garden
21. Japanese Garden
22. West Coast Park
23. Clementi Woods Park
24. Hindhede Nature Park
25. Bukit Batok Nature Park
26. Bukit Batok Town Park
27. Dairy Farm Nature Park
28. Choa Chu Kang Park
29. Bukit Panjang Park
30. Zhenghua Nature Park

### Central

31. Upper Seletar Reservoir Park
32. Springleaf Nature Park
33. Lower Seletar Reservoir Park
34. Upper Peirce Reservoir Park
35. Lower Peirce Reservoir Park
36. Ang Mo Kio Town Garden West
37. Ang Mo Kio Town Garden East
38. Bishan-Ang Mo Kio Park
39. MacRitchie Reservoir Park
40. Singapore Botanic Gardens
41. Toa Payoh Town Park

### East

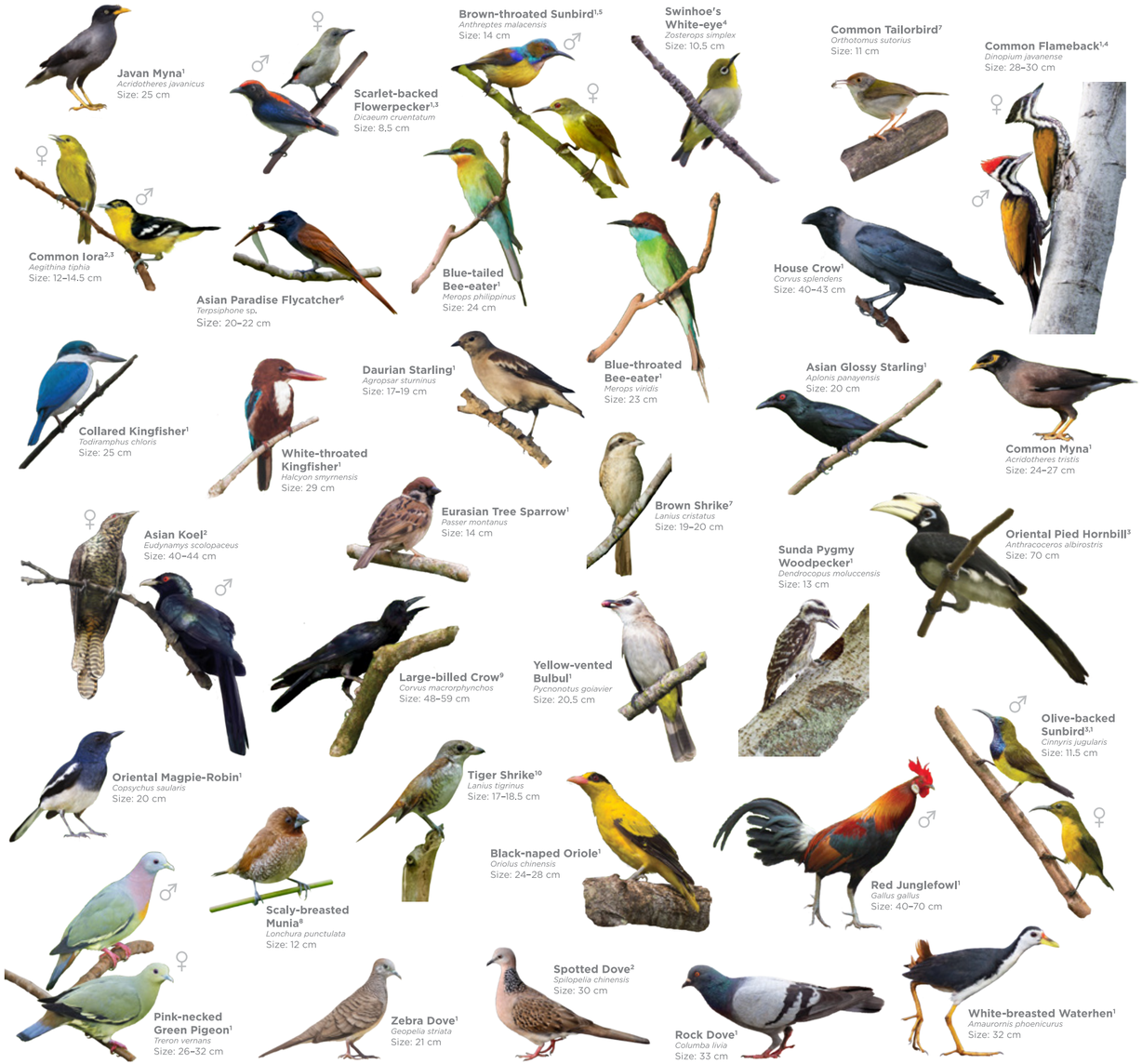
42. Pasir Ris Park
43. Pulau Ubin
44. Changi Village
45. Changi Beach Park
46. Pasir Ris Town Park
47. Tampines Eco Green

### East

48. Sun Plaza Park
49. Bedok Reservoir Park
50. Bedok Town Park
51. Aljunied Park
52. East Coast Park

### South

53. Gardens by the Bay East
54. Gardens by the Bay
55. Marina Promenade
56. Fort Canning Park
57. Pearl's Hill City Park
58. Mount Faber Park
59. Telok Blangah Hill Park
60. HortPark
61. Kent Ridge Park
62. Labrador Nature Reserve
63. Sentosa
64. Sisters' Islands Marine Park



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NATIONAL PARKS
LET'S MAKE SINGAPORE OUR CITY IN NATURE

Community In Nature

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*Front cover: Collared Kingfisher by Vincent Chiang*
*Back cover: Blue-tailed Bee-eater by Catalina Tong*

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# Contents

# Foreword

As we transform Singapore into a City in Nature, we will intensify our efforts to conserve important native plants and animals, and restore nature into the city. This will provide Singaporeans with a better quality of life, while co-existing with the flora and fauna among us.

Some years ago, I encountered the Spotted Wood Owl (*Strix seloputo*) featured here paying a surprise visit to my home. I captured this photograph while it rested on a ledge – it seemed to acknowledge my presence by giving me a wink before flying off to a nearby tree. I am sure that many more of us will have such encounters with our native biodiversity as we aspire to become a City in Nature.  Singaporeans will be able to experience the joy of being around nature and the many benefits that this will bring to our health and well-being. Our community will also forge closer bonds as together, we become active stewards of our living environment.

The success of NParks' Community in Nature (CIN) Biodiversity Watch series is a good example of the growing enthusiasm of Singaporeans to care for our natural heritage. Since the start of the series in 2015 with the first Garden Bird Watch, citizen scientists have ventured into our nature areas, parks and gardens for a shared purpose – to survey our rich biodiversity. The CIN Biodiversity Watch series has since grown to include watches for butterflies, dragonflies, herons, and intertidal biodiversity, as well as an annual Nationwide BioBlitz that aims to record all kinds of plants and animals across Singapore. The number of CIN citizen scientists has grown steadily along with the series, from 400 in 2015 to some 4,900 individuals in 2019, representing Singaporeans of all ages and from different walks of life.

This publication is the result of five years' worth of field survey data contributed by our dedicated citizen scientists participating in the Garden Bird Watch. The valuable data collected will allow us to better understand our local bird population and target our conservation management efforts. For instance, it will help us understand whether habitat enhancements in our parks are benefitting our garden birds. This publication also captures information on 50 species of birds surveyed through 10 editions of our Garden Bird Watch programme. For our many budding naturalists and citizen scientists, we hope that this will be a useful resource in your identification and documentation of birds in their natural environments across Singapore.

To all the past, present, and future citizen scientists, thank you for contributing towards Singapore's transformation into a City in Nature.

**Mr Desmond Lee**
*Minister for National Development*



**Spotted Wood Owl.** *Photo credit: Desmond Lee*

# Introduction

At first glance, many people would be surprised by the rich birdlife in Singapore, a highly urbanised city-state of about 720 sq. km. Hails & Jarvis (1987) recorded about 300 species when they published what was the first modern bird guide of Singapore. They noted that the high bird diversity in what is a very small area could be attributed to its tropical location, the prevalence of remnant forest and mangrove habitats, the annual influx of migratory species and new species that colonised the man-made habitats. Many of the new colonisers of man-made habitats, such as gardens and parks, are bird species associated with mangroves and coastal scrublands (Ward, 1968; Lim & Sodhi, 2004).

As a result of Singapore's greening efforts beginning in 1963 and with the Garden City campaign introduced in 1967, followed by our transformation into a City in a Garden from the late 1990s and 2000s, these birds inhabit a landscape mosaic characterised by a network of urban green spaces, ecologically connected to key habitats in our nature reserves. This has brought about an increase in bird diversity. By 2007, the country's bird list stood at 364 species (Wang & Hails, 2007). Today, the number stands at 414 species (Lim, 2020). This represents an increase of more than 30% in species over the last 30 years. With the recent launch of Singapore's vision to become a City in Nature, nature parks will be established as buffers to the nature reserves; urban gardens and parks will become more natural with the introduction of native plants and restoration of semi-natural habitats; and streetscapes will take the form of a tiered-forest structure (Er, 2018). This will undoubtedly encourage a further increase in bird diversity and enhance the persistence of forest-dependent bird species.

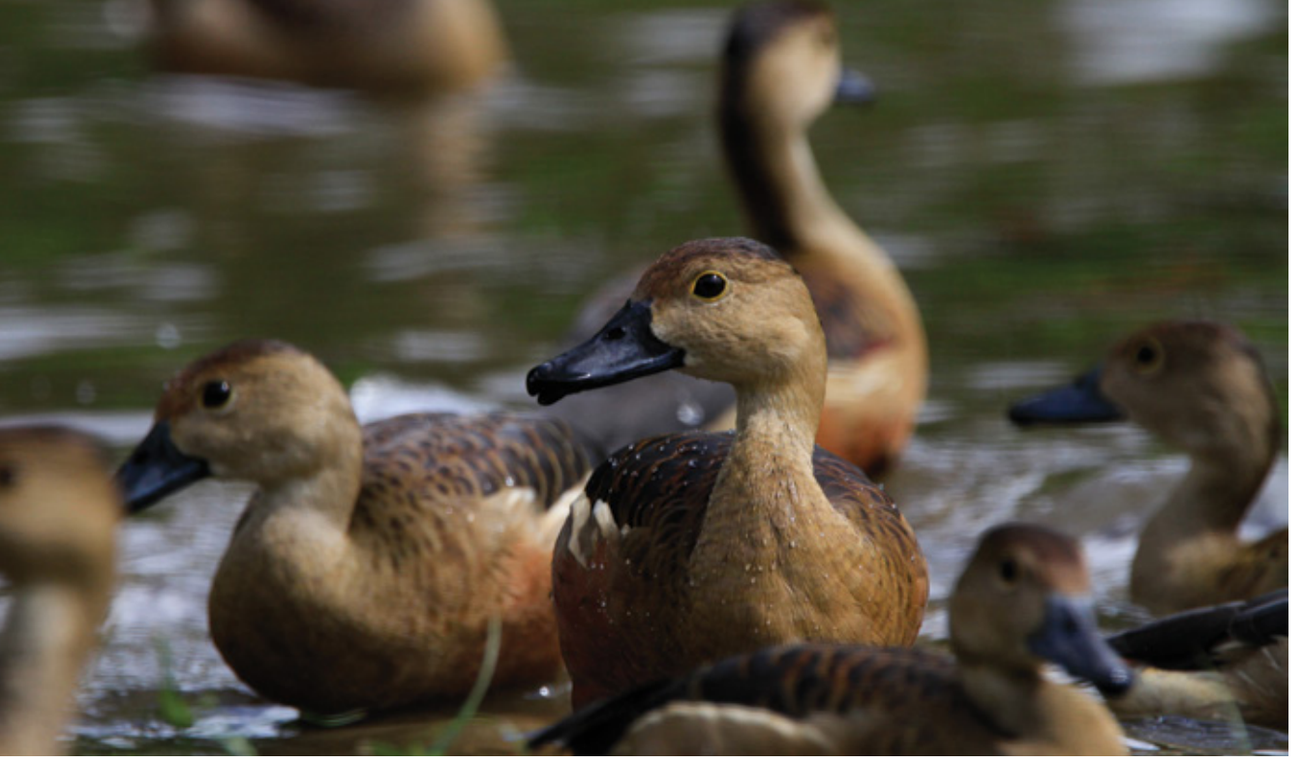
As Singapore transitions into a City in Nature, it will be useful for the National Parks Board (NParks) to be able to monitor the changes in bird species diversity in our gardens and parks. Birds are ideal ecological indicators because they are sensitive to changes in the environment and are relatively easy to survey. This will enable NParks to evaluate and refine conservation initiatives against the backdrop of an urbanising landscape.

**Citizen Science**

Involving the public in collaborations with professional scientists and institutions is not a new concept, although the popularity of citizen science has greatly increased in recent years (Wang *et al*., 2016). As birdwatching has captivated people for generations, it is not surprising that some of the early citizen science programmes involved the monitoring of bird trends. One of the earliest citizen science projects is the National Audubon Society's Christmas Bird Count in the United States, where volunteers have participated in the counting of birds every year since 1900. Likewise, the British Trust for Ornithology has harnessed the efforts of amateur birdwatchers since 1932, amassing a rich repository of data that contributes towards the National Biodiversity Network in the United Kingdom (Silvertown, 2009).



**Oriental Pied Hornbill.** *Photo credit: Kenneth Er*



**Lesser Whistling Ducks.** *Photo credit: Kenneth Er*

Locally, the Nature Society of Singapore, and its precursor the Singapore branch of the Malayan Nature Society, has conducted the Annual Bird Census every year since 1986 (Lim & Lim, 2009). These surveys stay important and relevant, providing a comprehensive set of long-term monitoring data of bird species in Singapore.

To monitor bird species diversity in our gardens and parks and promote community stewardship, NParks set up the Garden Bird Watch in 2015, as part of its Community in Nature (CIN) Biodiversity Watch Series. The CIN Biodiversity Watch Series involves members of the public from all walks of life, young and old, participating in large scale biodiversity surveys in gardens and parks across Singapore. The number of citizen scientists has grown from 400 in 2015 to about 4,900 in 2019.

**Garden Bird Watch**

The Garden Bird Watch is designed to accommodate participants with no prior birdwatching experience so that anyone with an interest can be involved. Training is provided to cover basic survey and birdwatching techniques as well as the identification of 34 common species of garden birds. The survey is conducted biannually during the breeding (April) and migratory (November) seasons within a window of a week by citizen scientists using the point-count method across 64 sites in Singapore.

This book summarises five years of the Garden Bird Watch and features the survey trends of 50 garden bird species.

Overall, the preliminary data collected over the survey period showed that many of Singapore's garden birds had either stable or increasing population trends. Of particular interest was the consistent increase in numbers of two nationally threatened species, the Oriental Pied Hornbill (from 18 birds at 5 sites in 2015, to 85 birds at 13 sites in 2019) and Oriental Magpie-Robin (from 46 birds at 17 sites in 2015, to 173 birds at 37 sites in 2019).

There was also an increase in the number of sightings of nectarivores, possibly as a result of the increased planting of native plants and the setting up of community gardens. For instance, recordings of the Olive-backed Sunbird increased from 234 birds at 38 sites in 2015, to 518 birds at 58 sites in 2019. Similarly, recorded sightings of the Scarlet-backed Flowerpecker increased from only 25 birds at 13 sites in 2015, to 117 birds at 29 sites in 2019. This is a good sign as these birds serve as important pollinators of native plants and edibles in our gardens.

Some understorey insectivores were also consistently prevalent, such as both the Common Tailorbird and Ashy Tailorbird, as well as the Malaysian Pied Fantail. Some of these species are associated with riparian habitats close to water and have gradually colonised these niches in our parks. Maintaining a more natural form in our gardens and parks has also helped to attract these birds.

With increasing habitat quality and connectivity, more adaptable forest birds were also sighted in the more wooded parks. An example is the Greater Racket-tailed Drongo, which was recorded in various sites outside the nature reserves including the Southern Ridges and Marsiling Park.

Data collected from the surveys have been applied to our conservation efforts for native birds, including the recovery of threatened species and key pollinators. Such efforts include the planting of native plants in our parks to provide food and habitat for native birds. The data gathered through Garden Bird Watch will help NParks to manage the balance in our parks for biodiversity conservation and recreation.

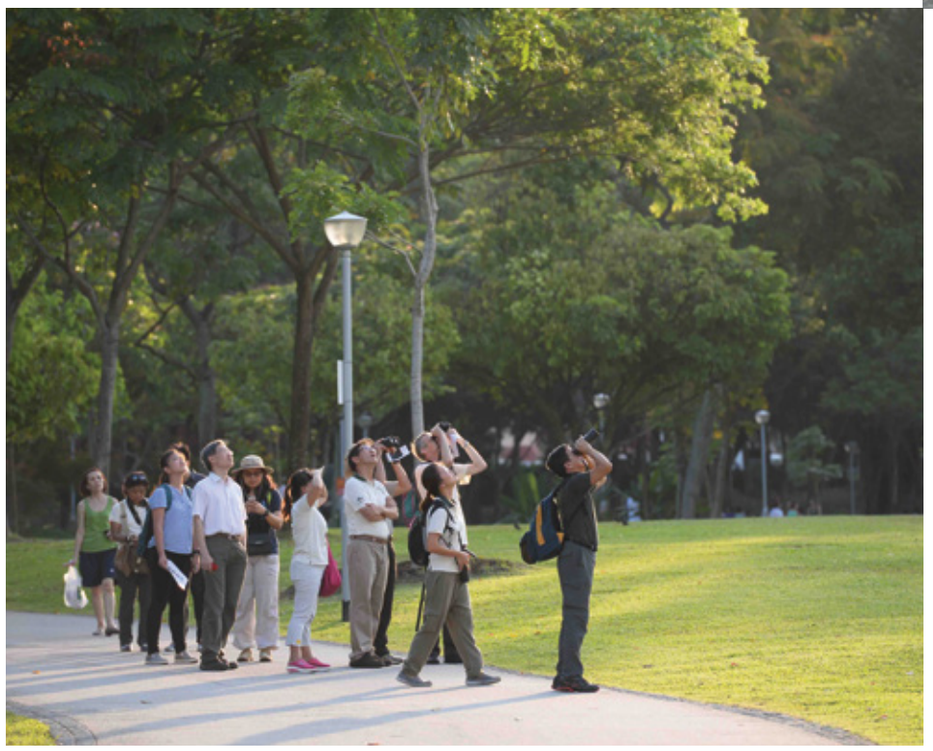
The community's involvement in the Garden Bird Watch, which remains one of our most popular citizen science programmes, shows that every effort contributes towards biodiversity conservation. This book is a testament of the commitment and support of all the citizen scientists who participated in Garden Bird Watch.

**Oriental Magpie-Robin.** *Photo credit: Kenneth Er*

## About Garden Bird Watch

In recent years, the positive impacts of citizen science (community participation in organised research endeavours) have been increasingly recognised worldwide. Not only do citizen scientists help to contribute to the body of knowledge about biodiversity and the environment, they gain a deeper appreciation for nature and desire to protect it. As such, to promote citizen science among Singaporeans, in 2015, NParks launched the CIN Biodiversity Watch series with the first Garden Bird Watch, which took place on 16 April 2015. The then Minister of State for National Development, Mr Desmond Lee, joined some 400 citizen scientists spread across 60 locations island-wide to record bird sightings during this inaugural event.

Recognising that mobile phone use is ubiquitous in Singapore, NParks also created the SGBioAtlas app to further encourage participation and enhance the ease of data collection. This app allows users to easily record biodiversity sightings and identify different species, and in turn contribute towards an online database, BIOME, which documents and overlays biodiversity occurrences and distributions onto a map of Singapore.



Birdwatching at the launch of the Garden Bird Watch in April 2015.

Before going out to survey on their own, citizen scientists get to practise bird identification in the field as part of training workshops conducted by NParks.

Since 2015, the CIN Biodiversity Watch series has expanded to include a Butterfly Watch, Heron Watch, Dragonfly Watch and Intertidal Watch, as well as the Nationwide BioBlitz that involves identifying and counting all plants and animals found within a data collection area. Cumulatively, thousands of citizen scientists have taken part in these watches, and the data collected from these events has enabled NParks to monitor biodiversity populations and habitats, and develop strategies to better manage Singapore's green spaces.

**Objectives**

The Garden Bird Watch is a biannual citizen science initiative to get Singaporeans involved in collecting valuable information about the birds in Singapore's parks, gardens and nature reserves. It helps to increase awareness about local avian biodiversity and encourages more people to actively participate in conservation efforts. Since its first edition held in April 2015, the Garden Bird Watch has been taking place biannually, totalling 10 runs as of end 2019.

Each year, the surveys are conducted over a specified week during the breeding season in April, and again during the migratory season in November. There are a total of 64 Garden Bird Watch sites, including parks, gardens, nature reserves and other areas with high levels of biodiversity. By repeating the data collection at the same points within the sites at similar times each year, we are also able to observe changes over time in the populations and distributions of both local and migrant bird species.

Observations and results of the Garden Bird Watch surveys conducted from 2015 through 2019 are presented in this book.

**Methodology**

As the sites vary greatly in terms of area, the point-count method is deemed the most suitable for the Garden Bird Watch. A certain number of data collection points, depending on the site area, are designated at each site, with the points spaced at least 200m apart to minimise double-counting.

Each volunteer is assigned to three to five points at a particular site to conduct their surveys. Surveys can be done on any day during the survey week, and at any time between 7 and 9 am. The volunteer spends 10 minutes birdwatching at each data collection point, noting down the different bird species that they see and the number of birds for each species. His or her findings are submitted either through an online result-collection form, or by sending in a scanned copy of a standard datasheet.

Upon receiving the volunteers' data, the Garden Bird Watch coordinator consults NParks' resident bird experts to check for errors, such as variance in numbers or recorded bird species. The data is then added to a master datasheet for analysis. The results of each survey are summarised and presented in an infographic that is shared on BIOME and on NParks' website.

**Training**

The type of data collected by citizen scientists may vary greatly in detail, which is partly due to each person's species identification skills. To minimise such limitations in the findings, training workshops are conducted for all citizen scientists before their surveys, and each survey has a large sample size.

The training workshops cover basic survey and birdwatching techniques, as well as


Bird identification guide sheets are provided for reference during the surveys.

Volunteers and staff surveying Sisters' Islands Marine Park, one of the Garden Bird Watch sites.

the identification of 34 common birds in Singapore (refer to ID guide on back cover). They also involve a practical component at the Singapore Botanic Gardens to better prepare volunteers without any prior birdwatching experience. To hone the volunteers' bird identification skills, NParks has also developed an interactive e-learning module to complement the training workshops.

For citizen scientists who wish to further contribute and enhance their knowledge and skills, the training workshops have been recently expanded to cover the identification of 20 additional bird species that are associated with forest habitats. Held at Bukit Timah Nature Reserve and Dairy Farm Nature Park, these workshops are targeted at volunteers who are confident in identifying Singapore's 34 common birds, and are interested in surveying the more complex bird communities found in our forests. These volunteers are subsequently assigned to survey sites within nature parks and other well-wooded areas, such as the Southern Ridges.

## Notable Observations and Rarities

The Singapore Red Data Book (2008) lists 56 nationally threatened resident bird species. Of these, 25 were observed over the five-year survey period captured in this publication.

Four of these species, namely the **Changeable Hawk-Eagle**, **Oriental Pied Hornbill**, **Straw-headed Bulbul** and **Oriental Magpie-Robin**, were observed during every survey period. Several other nationally threatened residents were observed, including the **Thick-billed Green Pigeon** (MacRitchie Reservoir Park), **Buffy Fish Owl** (Jurong Lake Gardens, Upper Peirce Reservoir Park), **Spotted Wood Owl** (Pasir Ris Park), **Blue-eared Kingfisher** (Jurong Eco-Garden), **Blue-rumped Parrot** (Pulau Ubin), **Mangrove Pitta** (Pulau Ubin) and **Greater Green Leafbird** (Upper Peirce Reservoir Park).

Several other noteworthy residents were also encountered, including the **Green Imperial Pigeon** (Pulau Ubin), **Greater Coucal** (Pulau Ubin, Telok Blangah Hill Park) and **Mangrove Whistler** (Pasir Ris Park).

**Straw-headed Bulbul.** *Photo credit: Alan Tan*

**Hodgson's Hawk-Cuckoo.** *Photo credit: Dillen Ng*

Besides resident species, a wide range of migratory birds were also recorded. While the bulk of the migrants were recorded during surveys conducted in November, which is the middle of the autumn migration period, some migratory birds were also recorded during the surveys conducted in April on their return journey to their breeding grounds in the Northern Hemisphere.

In all, 60 species of migratory birds were recorded. Notable species include **Von Schrenck's Bittern** and **Baillon's Crake** (both at Gardens by the Bay), the **Greater Spotted Eagle** (Singapore Botanic Gardens), a variety of cuckoos including the **Chestnut-winged Cuckoo** (Jurong Central Park, Sungei Buloh Wetland Reserve Coastal and Forest Trails), **Malaysian Hawk-Cuckoo** (Telok Blangah Hill Park) and **Hodgson's Hawk-Cuckoo** (Pasir Ris Park) and a host of flycatchers including the globally-threatened **Brown-chested Jungle Flycatcher** (Sungei Buloh Wetland Reserve) and **Blue-and-white Flycatcher*** (Sisters' Islands Marine Park).

**Buffy Fish Owl.** *Photo credit: Ramesh Nadarajah*

*Recent genetic studies have resulted in the splitting of this species into two: the Zappey's Flycatcher (*Cyanoptila cumatilis*) and the Blue-and-white Flycatcher (*Cyanoptila cyanomelana*). However, only adult males of both species can be reliably differentiated. As only a single immature individual was observed, it is still treated here as the Blue-and-white Flycatcher (its "old" name).

## Summary of Results

**184** Total Species Counted

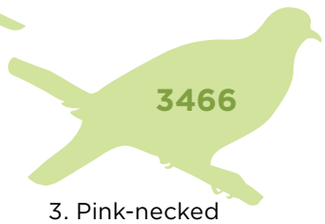
### Most Recorded Species

17668

1. Javan Myna

5323

2. Asian Glossy Starling



3466

3. Pink-necked Green Pigeon

3369

4. Black-naped Oriole

3274

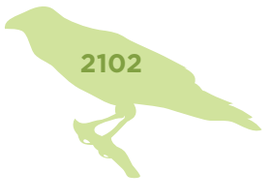
5. Rock Dove

3020

6. Yellow-vented Bulbul

2158

7. Olive-backed Sunbird



2102

8. House Crow

1868

9. Eurasian Tree Sparrow

1844

10. Collared Kingfisher



### Top Sites for Species Richness

| Rank | Species Richness | |
|---|---|---|
| 1 | Sungei Buloh Wetland Reserve Coastal and Forest Trails | 80 |
| 2 | Kranji Marshes | 76 |
| 3 | Pulau Ubin | 75 |
| 4 | Sungei Buloh Wetland Reserve | 67 |
| 5 | Pasir Ris Park | 64 |
| 6 | Bishan-Ang Mo Kio Park | 62 |
| 7 | Gardens by the Bay | 61 |
| 8 | Singapore Botanic Gardens | 61 |
| 9 | Coney Island Park | 59 |
| 10 | Tampines Eco Green | 58 |

### Top Sites for Local Abundance*

| Rank | Local Abundance | |
|---|---|---|
| 1 | Kranji Marshes | 41.1 |
| 2 | Changi Village | 26.5 |
| 3 | Chinese Garden | 24.8 |
| 4 | Lower Peirce Reservoir Park | 22.2 |
| 5 | Dairy Farm Nature Park | 21.8 |
| 6 | Jurong Central Park | 20.7 |
| 7 | Marsiling Park | 19.1 |
| 8 | Changi Beach Park | 18.8 |
| 9 | Sungei Buloh Wetland Reserve | 18.3 |
| 10 | Springleaf Nature Park | 18.0 |

*Local Abundance refers to the average number of birds counted in each survey at a site. See page 23 for more details on the methods of analysis.

# Family Summaries

This section summarises observations and preliminary trends across various bird families over the five-year survey period. The families in this book are presented in an order that is consistent with the World Bird List from the International Ornithological Congress and the Singapore Bird Checklist from the Nature Society (Singapore) Bird Group. Emphasis is placed on families which have species that citizen scientists are taught to identify as part of our volunteer training programmes. Additional information can be found in the Featured Species section of this book.

### Kites, Hawks and Eagles (Family Accipitridae)

Ten species of bird of prey, including the **Western Osprey**, were recorded. The two common resident raptors, the **Brahminy Kite** and **White-bellied Sea Eagle**, were recorded during every survey and showed a stable trend.

### Rails, Crakes and Coots (Family Rallidae)

Four species were recorded, including the furtive **Black-backed Swamphen** and **Baillon's Crake**. The most widespread and commonly encountered member of this family, the **White-breasted Waterhen**, was recorded during all surveys in good numbers.

### Pigeons and Doves (Family Columbidae)

Ten species were recorded. Of the four urban-adapted species, the introduced **Rock Dove** and the native **Pink-necked Green Pigeon** were two of the most abundant species recorded. Between the two common terrestrial doves, the larger **Spotted Dove** was more commonly recorded than the smaller **Zebra Dove**.

### Cuckoos (Family Cuculidae)

Thirteen species were recorded, including uncommon residents like the **Rusty-breasted Cuckoo** and **Banded Bay Cuckoo**, and migrants such as **Hodgson's Hawk-Cuckoo**. The ubiquitous **Asian Koel** was generally more numerous during the migratory season, suggesting that migratory sub-populations of this species either pass through or overwinter in Singapore.

**Copper-throated Sunbird.** *Photo credit: Lim Sheau Torng*

### Kingfishers (Family Alcedinidae)

Six species were recorded. Of the two urban kingfishers, there were more than five times the number of **Collared Kingfishers** recorded, compared to the **White-throated Kingfisher**. It is also noteworthy that significantly more Collared Kingfishers were observed during the breeding season surveys in April, which may suggest high rates of post-breeding dispersal.



**Laced Woodpecker.** *Photo credit: Ong Zhen Quan*

### Bee-eaters (Family Meropidae)

Two species are present in Singapore, and both were recorded during all surveys. Unsurprisingly, the migratory **Blue-tailed Bee-eater** was more commonly recorded during the migratory season surveys in November. In contrast, the **Blue-throated Bee-eater**, a breeding visitor to Singapore, was more numerous during the breeding season surveys in April. However, a few individuals, likely juveniles, were still present in November.

### Hornbills (Family Bucerotidae)

Both hornbill species that occur in Singapore were recorded, including the **Black Hornbill**, a recent addition to the Singapore bird list. The **Oriental Pied Hornbill**, a conservation success story and now widespread throughout Singapore, was recorded during all surveys.

### Barbets (Family Megalaimidae)

All three species documented from Singapore were recorded. Of particular interest was the presence of the introduced **Lineated Barbet** during all the surveys. First observed at Bukit Batok Nature Park in 1997, this species has now become well-established throughout Singapore in just over 20 years.

### Woodpeckers (Family Picidae)

Five species were recorded, with the **Sunda Pygmy Woodpecker** and **Common Flameback** dominating the counts. The latter species was more readily observed given its comparatively large size, attractive plumage and vocal nature.

### Old World Parrots (Family Psittacidae)

Six species were recorded (excluding cockatoos, which are in a different family). Interestingly, overall figures for the **Long-tailed Parakeet**, Singapore's only native parakeet, were higher than the introduced **Red-breasted Parakeet**. These results suggest that Long-tailed Parakeets are still holding their own despite the prevalence of a variety of introduced parrots in Singapore.

### Ioras (Family Aegithinidae)

This small family of four species only has one representative from Singapore, where it is a common urban inhabitant. True to its name, the **Common Iora** was recorded during all surveys. This species was more conspicuous in the breeding season, suggesting that when not actively vocalising outside this period, its small size and arboreal habits make it hard to detect.

### Shrikes (Family Laniidae)

All three species found in Singapore were recorded during the surveys. Between the two migratory shrikes, the **Brown Shrike** outnumbered the less numerous **Tiger Shrike.** It is likely that the latter's preference for skulking in the understorey of densely wooded areas contributed to lower detection rates.

**Orange-bellied Flowerpecker.** *Photo credit: Shalinder Singh*

### Orioles (Family Oriolidae)

The sole representative of this family in Singapore is the **Black-naped Oriole**, one of our most striking and recognisable garden birds. This translated into the species being one of the most numerous birds recorded.

### Monarchs (Family Monarchidae)

This family includes the **Asian Paradise Flycatcher**. Due to recent DNA studies, this species has now been split into three species. The Indian Paradise Flycatcher is a rare visitor to Singapore, while the other two species, Blyth's Paradise Flycatcher and Amur Paradise Flycatcher, are regular migrants to Singapore. Small numbers of paradise flycatchers were recorded during November surveys. However, it is impossible to determine which of the three species were present as much of the data was collected prior to the acceptance of the taxonomic split.

### Crows (Family Corvidae)

Predictably, there were more than 10 times the number of urban-adapted **House Crows** recorded compared to the woodland-dependent **Large-billed Crow**. Interestingly, substantially more House Crows were counted during the non-breeding season, perhaps indicative of the formation of large flocks during this period.

### Bulbuls (Family Pycnonotidae)

Eight species were recorded. The highly urban-adapted **Yellow-vented Bulbul** was amongst the most numerous bird species observed. The Critically Endangered **Straw-headed Bulbul** also appears to be doing well with records from all surveys.

### Cisticolas, Prinias and Tailorbirds (Family Cisticolidae)

All the representatives in this family were observed, with the widespread **Common Tailorbird** being the most commonly encountered. The more specialised representatives such as the **Yellow-bellied Prinia** and **Rufous-tailed Tailorbird** were recorded in small numbers during most surveys.

### White-eyes (Family Zosteropidae)

The sole representative of this family in Singapore is the **Swinhoe's White-eye**, which is now a familiar garden bird. It was recorded during all surveys.

### Starlings and Mynas (Family Sturnidae)

This family contains the two most abundant birds in Singapore. The **Javan Myna** is the most ubiquitous bird in Singapore, while the **Asian Glossy Starling** is the second-most numerous bird recorded. Despite the prevalence of its introduced cousin, the native **Common Myna** is still widely distributed across Singapore. In our forested areas, the **Common Hill Myna** was recorded during all surveys.

### Old World Flycatchers and Chats (Family Muscicapidae)

Eight species from this family were recorded, including the resident **Oriental Magpie-Robin** and **White-rumped Shama**. Oriental Magpie-Robins were particularly conspicuous during the April surveys, likely due to their territorial nature. On the migrant front, a variety of flycatchers were recorded during the November surveys including the globally threatened **Brown-chested Jungle Flycatcher**.

### Flowerpeckers (Family Dicaeidae)

This family comprises some of Singapore's smallest birds. The woodland-dependent **Orange-bellied Flowerpecker** was recorded in small numbers, while the urban-adapted **Scarlet-backed Flowerpecker** was more numerous.

### Sunbirds and Spiderhunters (Family Nectariniidae)

A familiar sight in our urban landscape, the **Olive-backed Sunbird** was the most numerous member of this family recorded. Its larger cousin, the **Brown-throated Sunbird**, was less frequently observed. Among the more specialised members, the mangrove-dependent **Copper-throated Sunbird** and woodland-dependent **Crimson Sunbird** both featured prominently across the survey period.

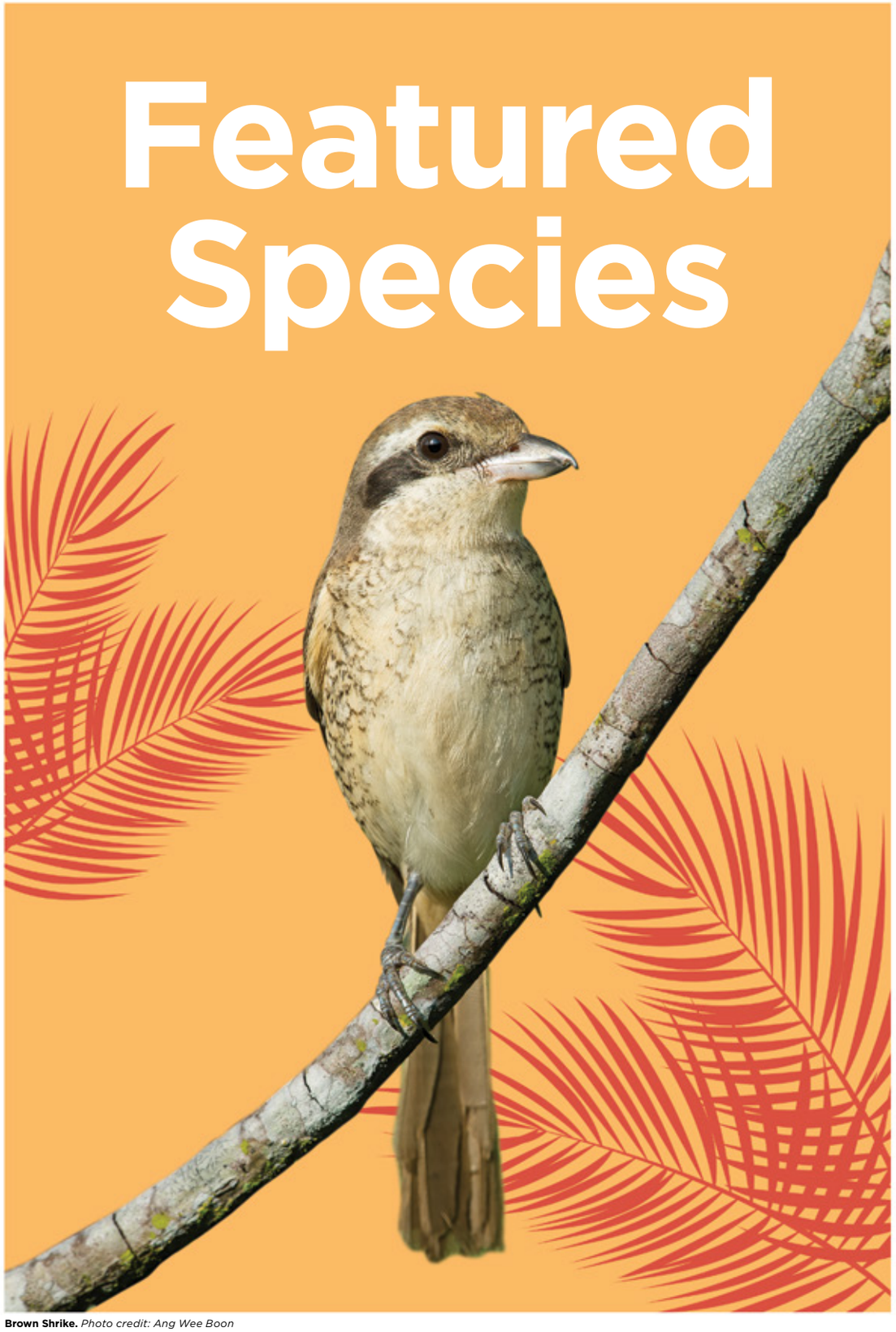
### Old World Sparrows (Family Passeridae)

The familiar **Eurasian Tree Sparrow** was not as abundant as some of the other urban birds, but still featured amongst the top 10 most abundant species over the survey period.

### Munias (Family Estrildidae)

Amongst this family of seed-eating birds, the adaptable **Scaly-breasted Munia** was the most regularly recorded, featuring in every survey. Rarer members that were recorded during the survey period include the **White-rumped Munia**, a species associated with grassy clearings adjacent to wooded areas.

# Featured Species



**Brown Shrike.** *Photo credit: Ang Wee Boon*

Fifty species encountered during the Garden Bird Watch surveys from 2015 through 2019 are highlighted in the following pages. Volunteers were introduced to 34 of these species through the training workshops conducted prior to each survey.

For each species, a graph shows the **Number of Individuals Observed per Survey Round** conducted between 2015 and 2019.

As some points may have been surveyed more than once in each round, the **Local Abundance per Survey Site** was calculated to account for the differences in sampling effort. This was then plotted on a map of Singapore to assess the distribution of the species across the survey sites.

Local Abundance at a particular site is taken to be the following:

$$\text{Local Abundance} = \frac{\text{Total Birds Counted per Site}}{\text{Total Surveys Conducted per Site}}$$

Local Abundance gives an indication of the average number of birds spotted during each survey at a particular site. If a circle is present on the map, the species was recorded at that site at some point during all of the surveys conducted between 2015 and 2019. The colour of the circle represents the local abundance of birds at that site across all surveys conducted, with a lighter colour reflecting a lower abundance and darker colour reflecting a higher abundance. For the full list of surveyed sites, please refer to the map at the front flap of this book.

# Red Junglefowl
*Gallus gallus*

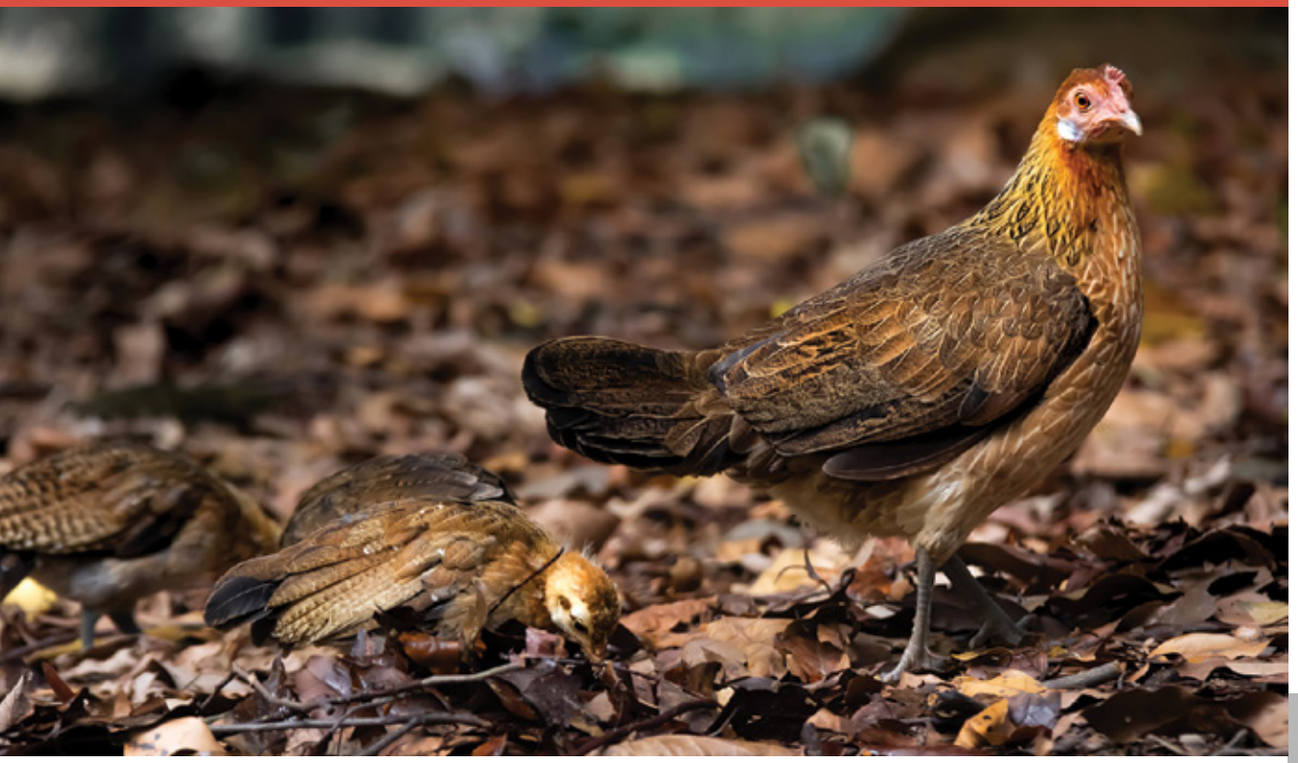


*Photo credit: Lee Kian Tat*

## Characteristics and Global Range

An unmistakable bird. Wild-type roosters are best discerned by a combination of slate-grey legs, white rump and white ear-patch. Hens are uniformly dull brown with heavy streaking. This species is widely regarded as the ancestor of the domestic chicken and plumage colouration can vary greatly owing to interbreeding with domestic stock. It is widely distributed across Southeast Asia including the islands of eastern Indonesia.

## Distribution, Abundance and Habitat

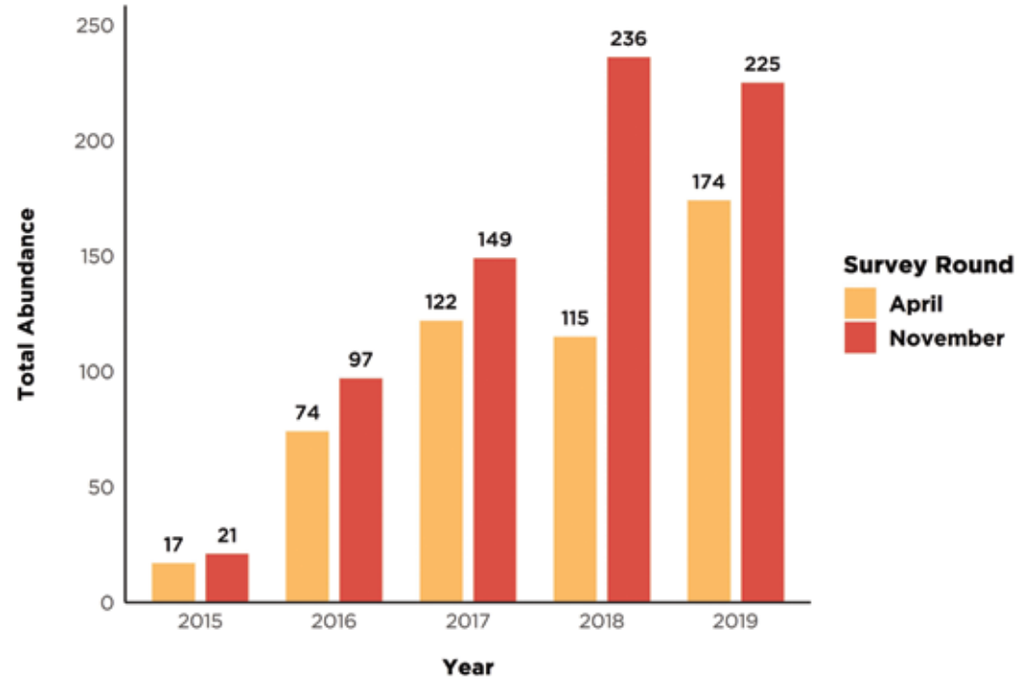
This species was recorded from 44 sites. Formerly restricted to wooded areas on Pulau Ubin and western Singapore, large roving flocks comprising a mix of domestic fowl and wild-type birds are now a common sight in many parts of Singapore.

## Preliminary Trends and Conservation

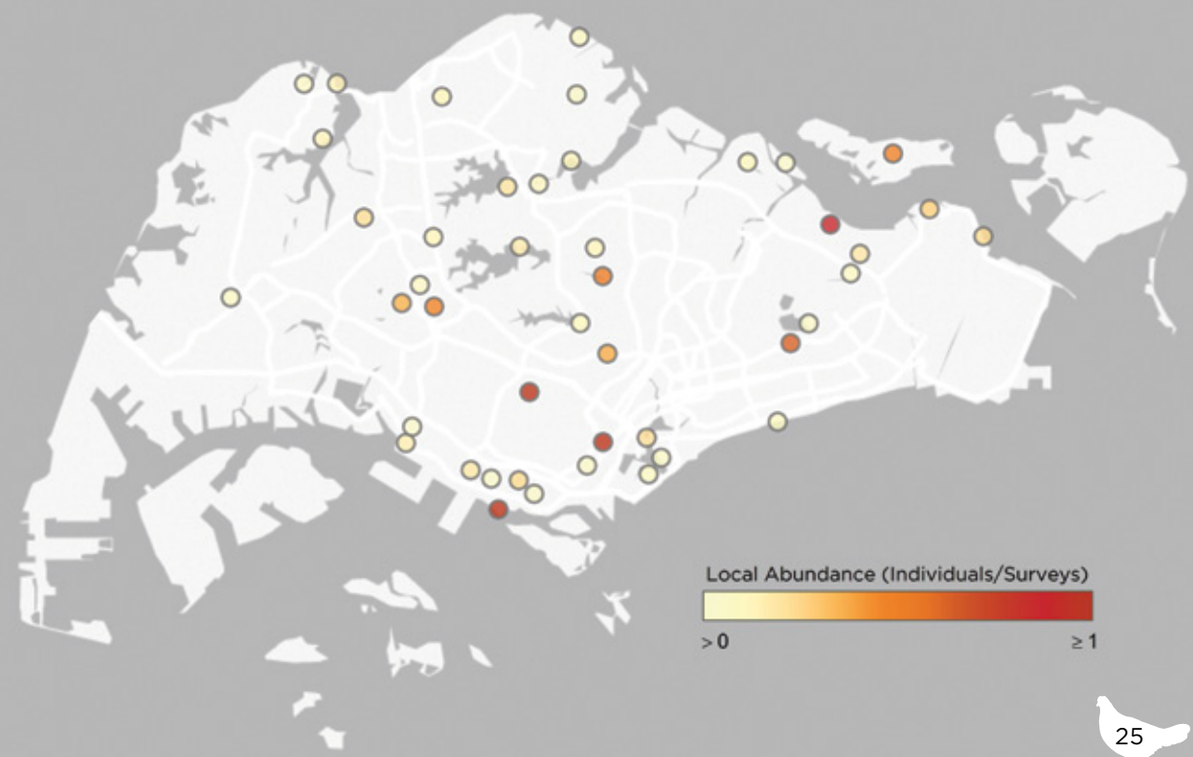
This species is classified as nationally Endangered, and conservation efforts are complicated by a lack of knowledge regarding the genetic provenance of the birds recorded across Singapore. Nevertheless, what is certain is that the population of chickens has increased significantly in recent years, a trend which is reflected in the survey results.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Changeable Hawk-Eagle

*Nisaetus cirrhatus*

*Photo credit: Francis Yap*

## Characteristics and Global Range

A large raptor with variable plumage. Two main colour morphs occur locally. Dark morph birds are uniformly dark brown. Light morph birds have a whitish head with brownish wings, back and tail. Their underparts are whitish with bold black breast streaks. This species is found across the Indian subcontinent and many parts of Southeast Asia.

## Distribution, Abundance and Habitat

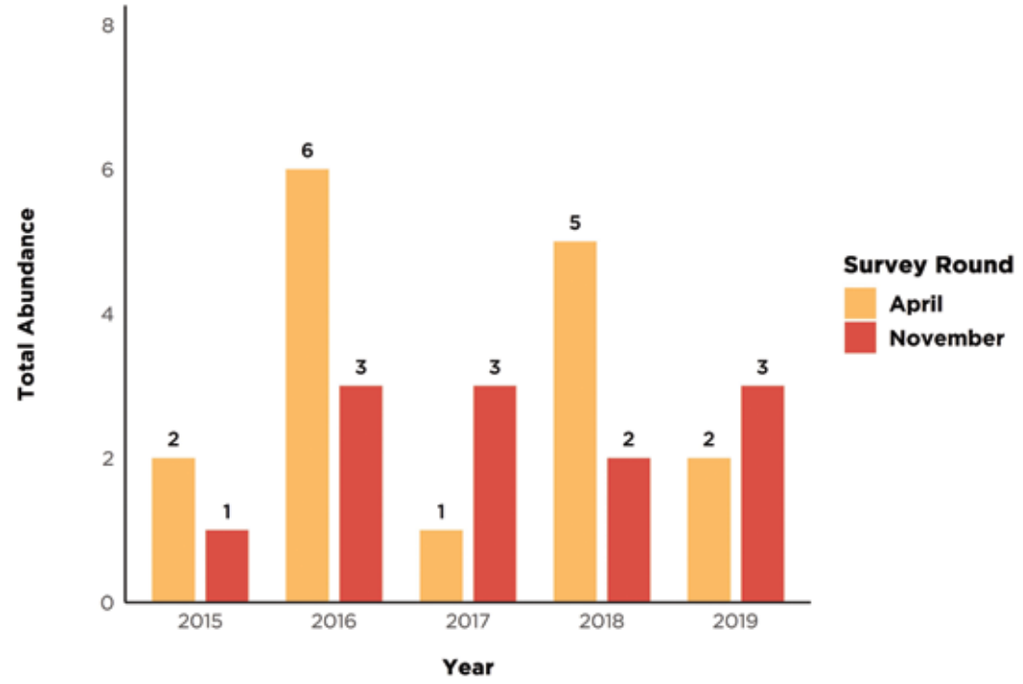
An uncommon resident of wooded habitats in Singapore, this species appears to be slowly expanding its distribution across Singapore. It was recorded at 14 sites across the island.

## Preliminary Trends and Conservation

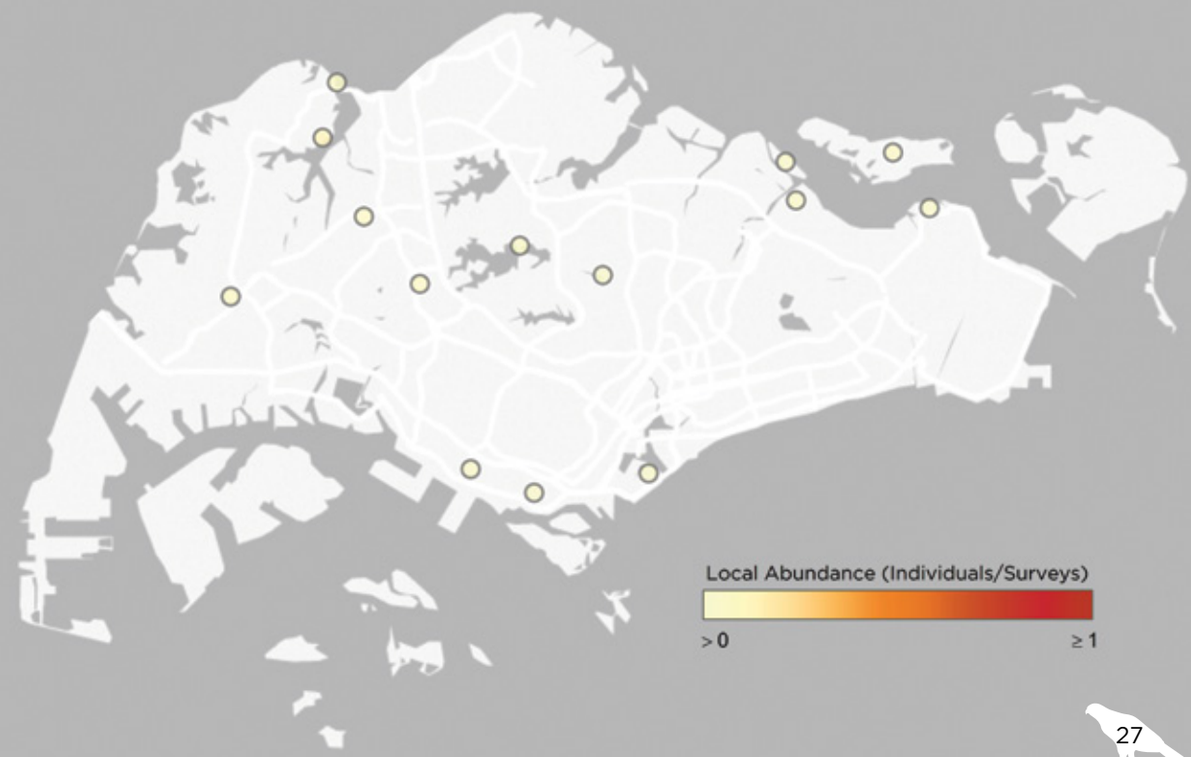
This species is classified as nationally Endangered. Detection rates appear to have increased following its inclusion in the list of forest birds that are taught to volunteers since 2016. Its presence at various sites across the island bodes well for its long-term survival prospects.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# White-bellied Sea Eagle

*Haliaeetus leucogaster*

*Photo credit: Ang Wee Boon*

## Characteristics and Global Range

The largest resident raptor in Singapore. Adults are distinctive with a white head, nape and underparts contrasting with grey back and wings. Juveniles have a pale brown head and dirty brown underparts. This species is widely distributed across coastal areas of the Indian subcontinent and southern China through Southeast Asia south to Australia.

## Distribution, Abundance and Habitat

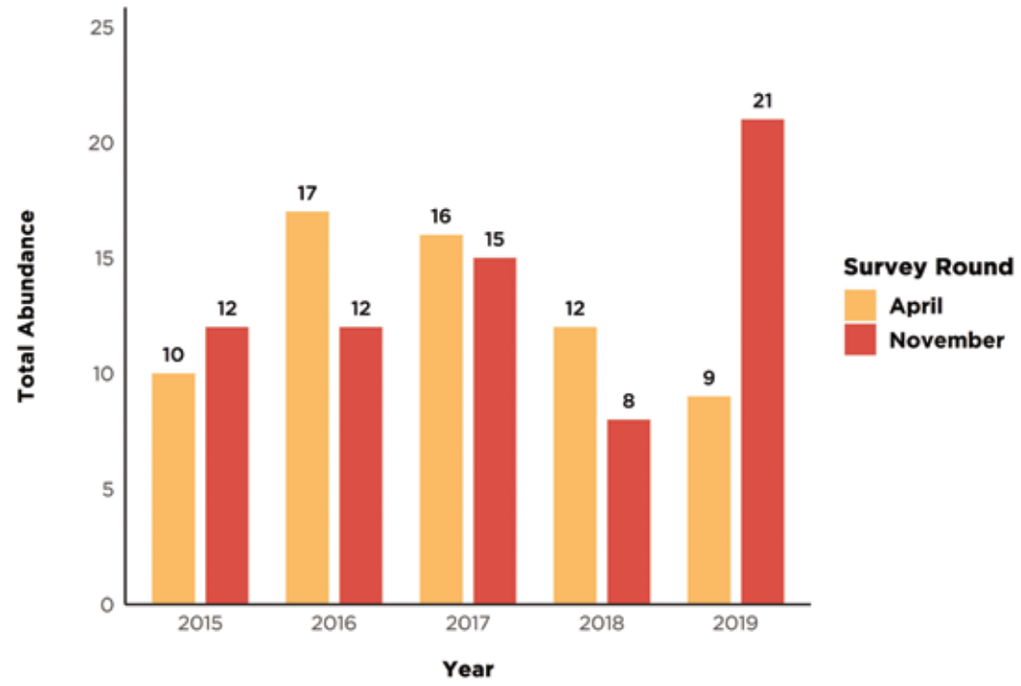
This species inhabits both freshwater and coastal wetlands. Found throughout Singapore, it was recorded at 35 sites, with higher numbers occurring at coastal sites such as Pulau Ubin and Sungei Buloh Wetland Reserve.

## Preliminary Trends and Conservation

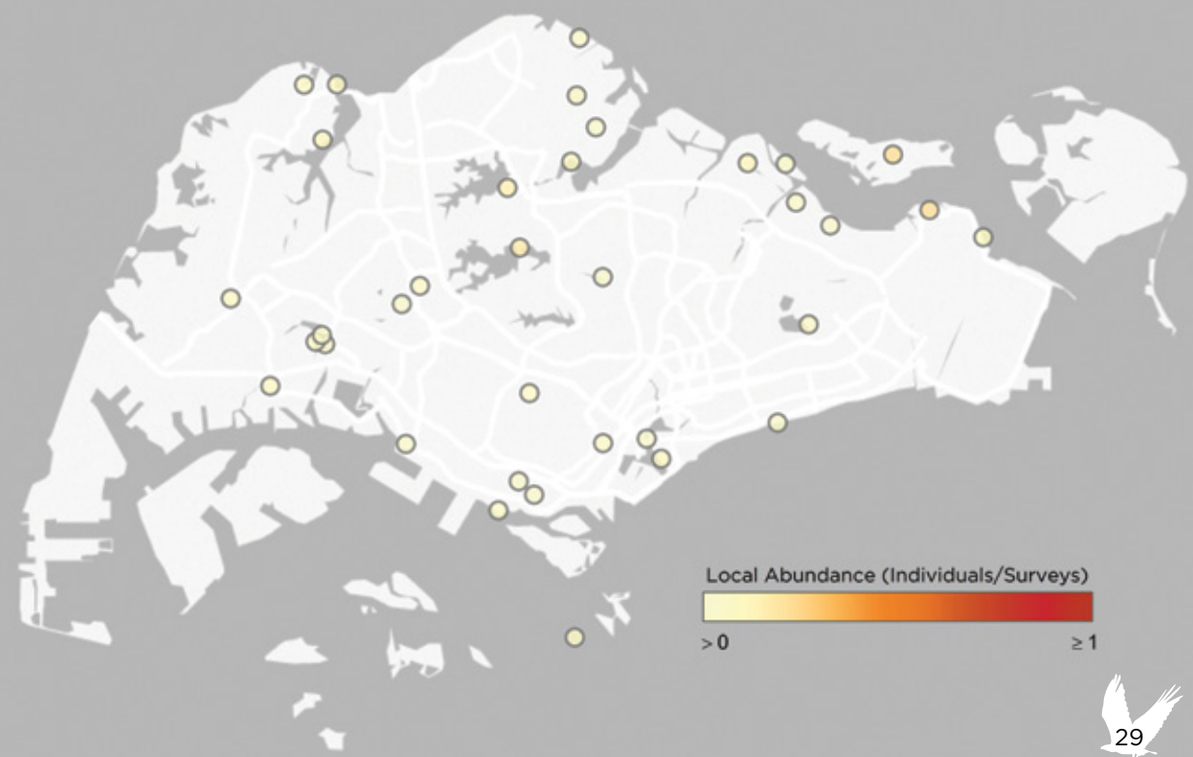
The local population appears to be stable over the course of the survey period.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# White-breasted Waterhen
*Amaurornis phoenicurus*

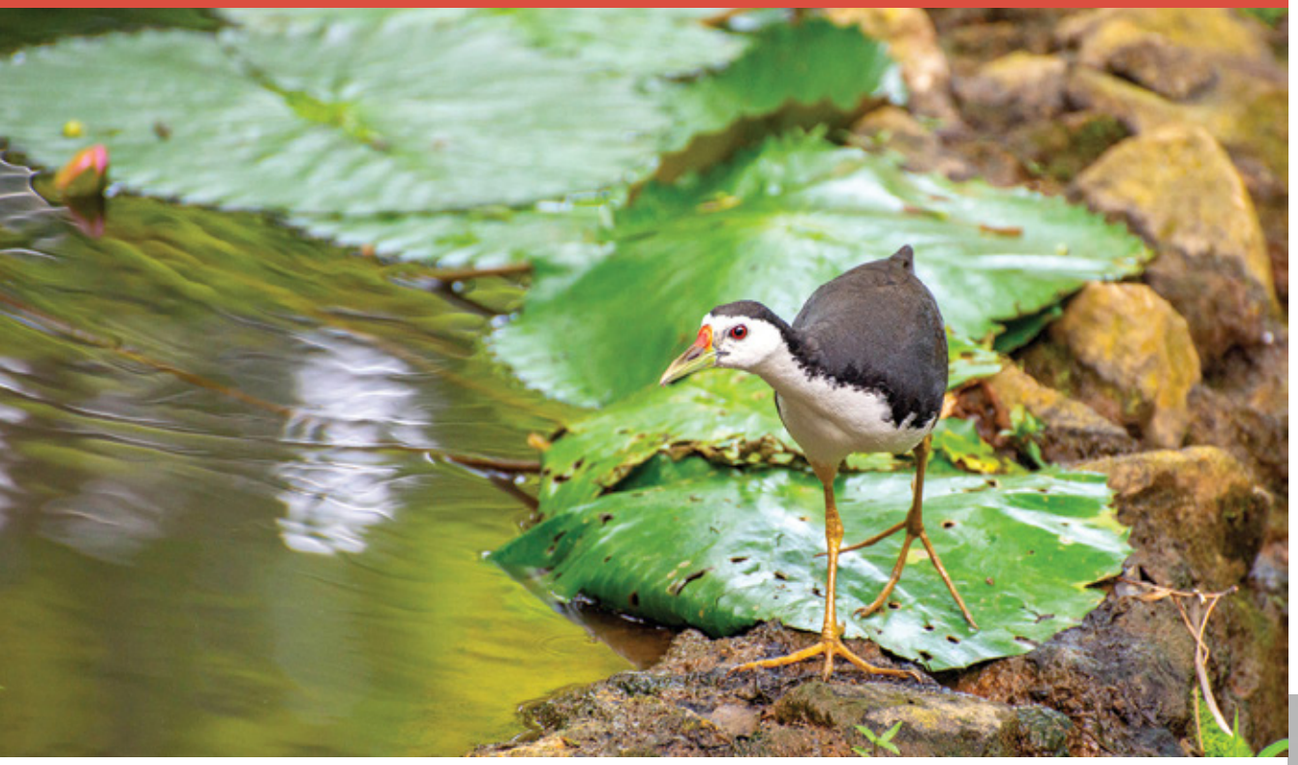


*Photo credit: Siew Heng Keong*

## Characteristics and Global Range

The only rail that is regularly encountered in urban areas. Adults have black upperparts and white underparts with a white face, greenish bill and chestnut vent. This species occurs from the Indian subcontinent and eastern China to Southeast Asia. The China population is migratory and overwinters in Southeast Asia.

## Distribution, Abundance and Habitat

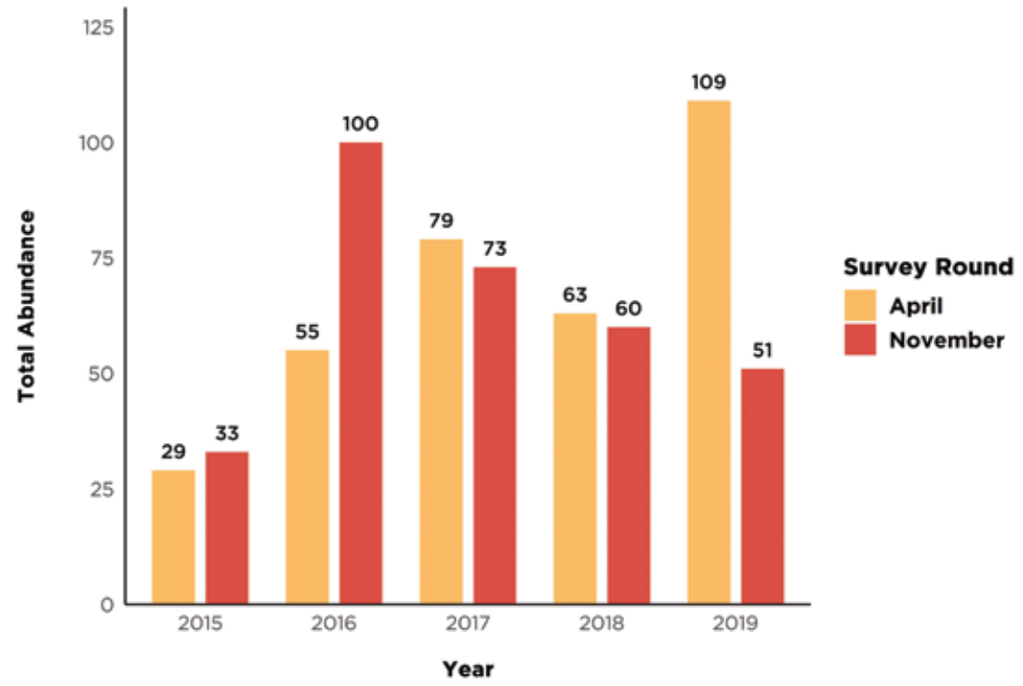
This species was recorded at 39 sites. As its name suggests, it was generally found at parks which had water bodies. The highest single counts were from sites containing wetlands such as Singapore Botanic Gardens and Bishan-Ang Mo Kio Park.

## Preliminary Trends and Conservation

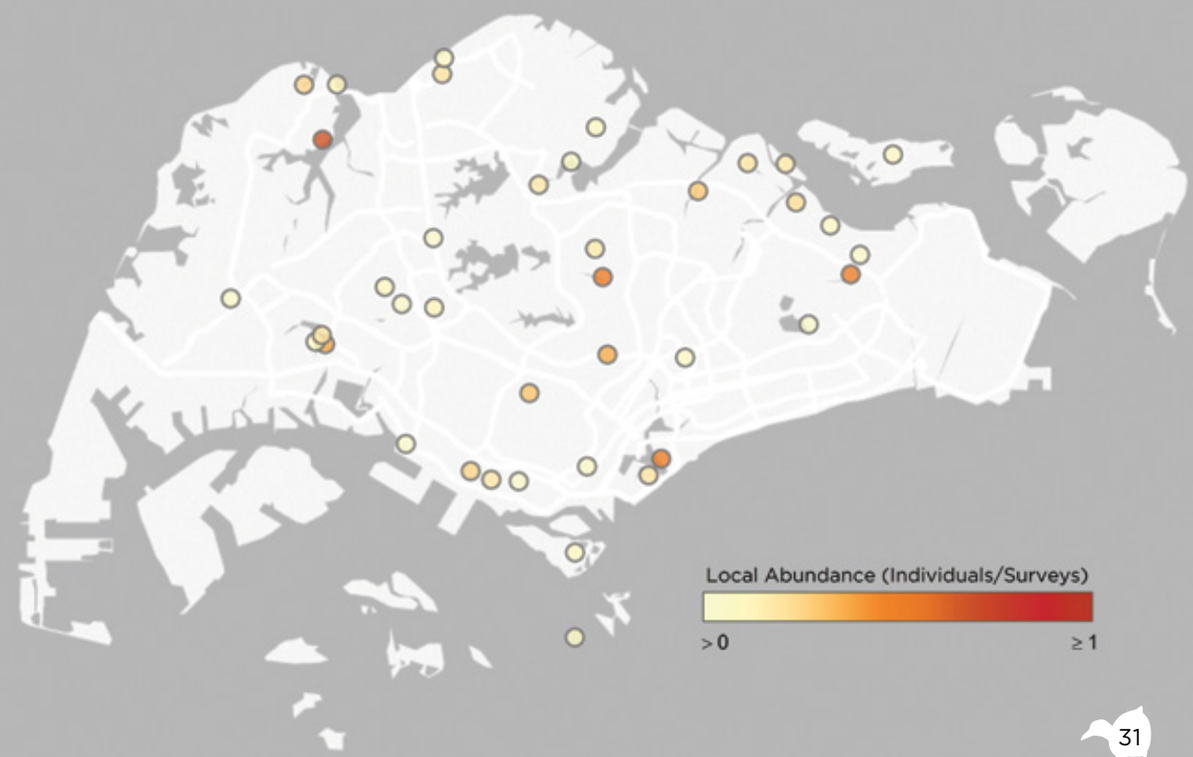
The local population appears to be increasing, possibly because many new urban developments have incorporated vegetated water bodies into their design.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Rock Dove
*Columba livia*

*Photo credit: Tan Hong Ern Benjamin*

## Characteristics and Global Range

Also commonly referred to as the Rock Pigeon, the Rock Dove is one of the most cosmopolitan and ubiquitous urban birds that can be found in urban areas worldwide. Its plumage varies greatly due to interbreeding with domestic stock. The wild-type bird has a blue-grey face, glossy green neck and light grey back, underparts and wings with two prominent black wing bars. This species is native to Europe, North Africa and the Middle East but feral populations occur worldwide.

## Distribution, Abundance and Habitat

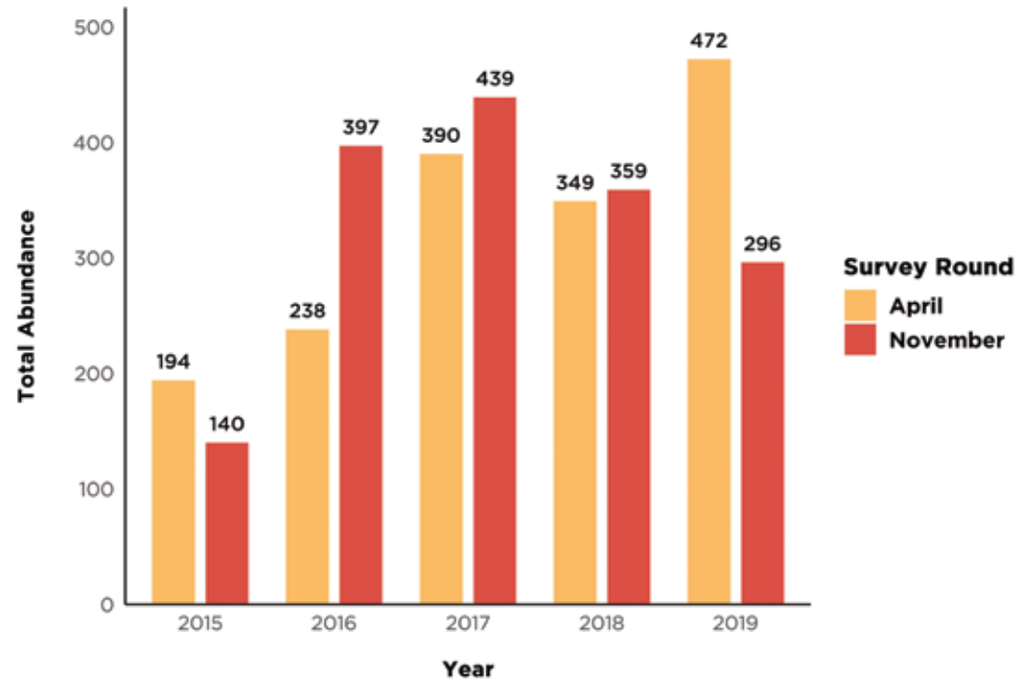
This species is abundant and was recorded at 56 sites. This bird is a human commensal and occurs throughout Singapore.

## Preliminary Trends and Conservation

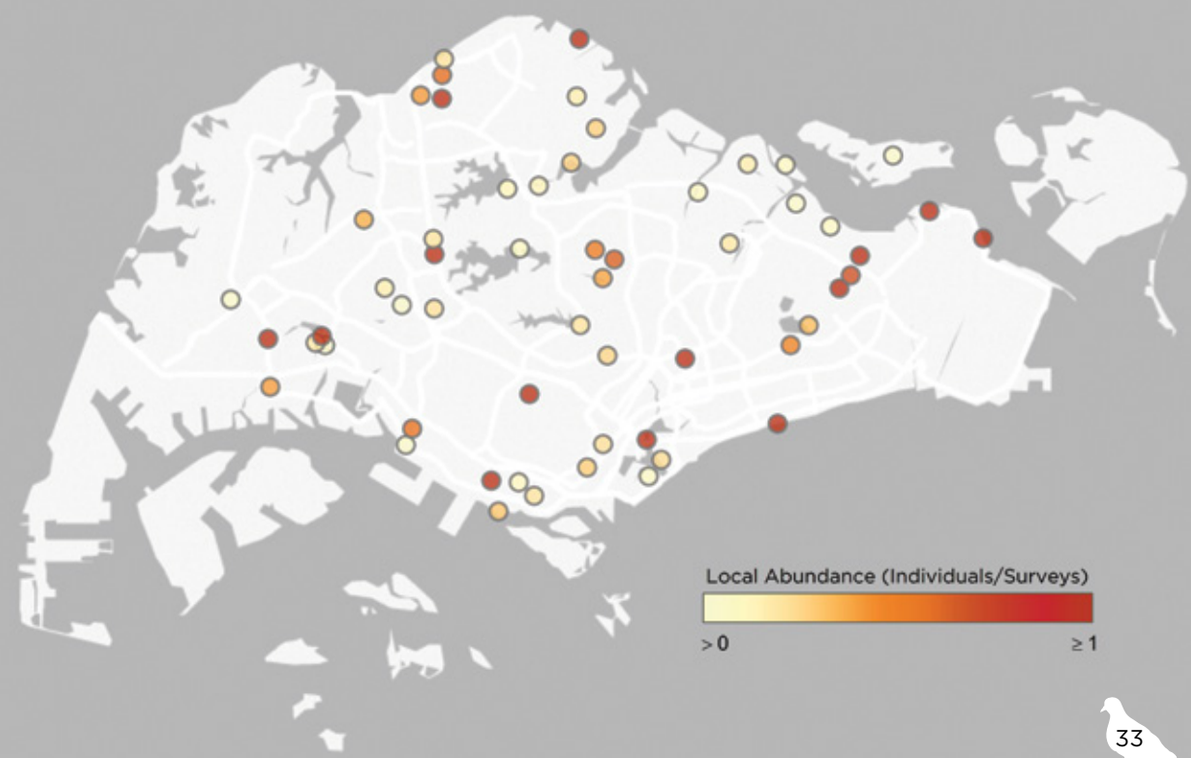
Widely regarded as an urban pest in Singapore, this species is often found loitering in flocks around food and beverage outlets.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Spotted Dove
*Spilopelia chinensis*

*Photo credit: Lee Hin Jin*

## Characteristics and Global Range

The larger and more common of the two native urban doves. It can be distinguished from the smaller Zebra Dove (page 36) by its larger size, pinkish-brown head and underparts, and black neck collar that is heavily spotted. The Spotted Dove occurs from central China south to Southeast Asia, with many feral populations found in other parts of the world.

## Distribution, Abundance and Habitat

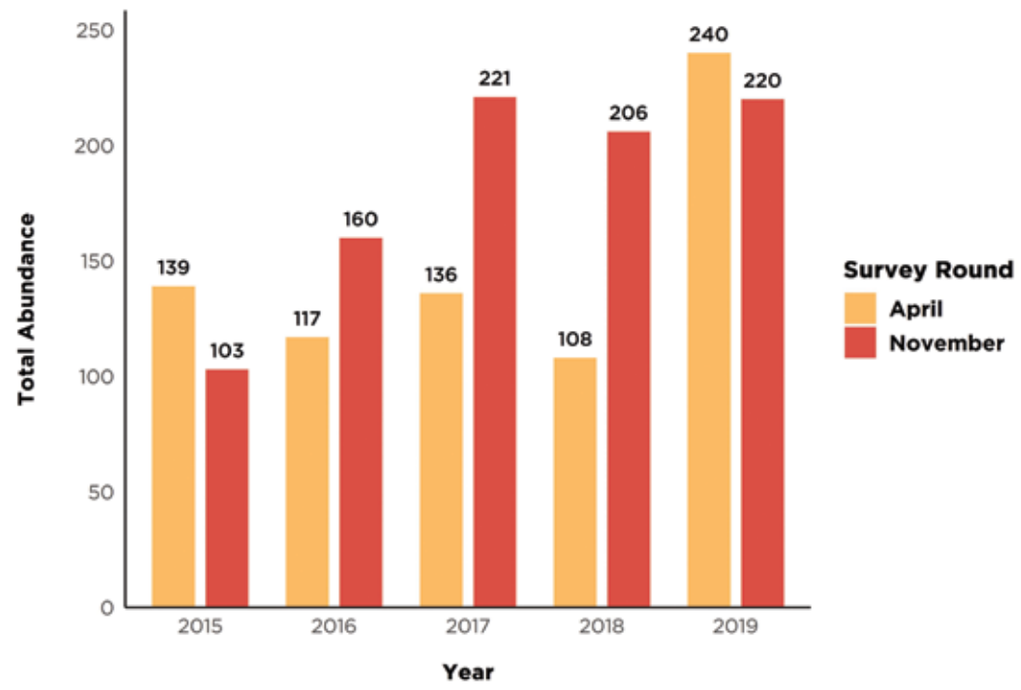
This species is common across Singapore and was recorded at 61 sites. Like the Zebra Dove, it is a terrestrial forager of grass seeds and occurs wherever this resource is available.

## Preliminary Trends and Conservation

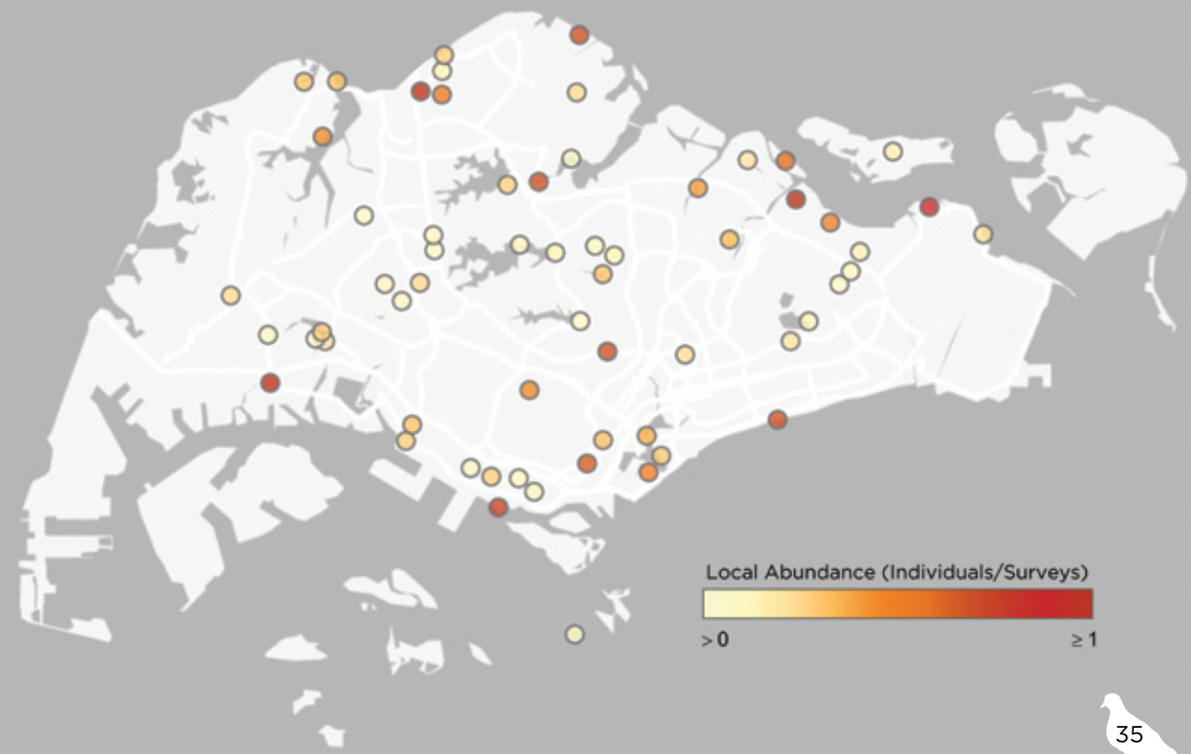
Like the Zebra Dove, this species is popular in the bird trade due to its soothing call and may thus be targeted by local poachers. However, the local population remains healthy.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Zebra Dove
*Geopelia striata*

*Photo credit: Fabius Tan*

## Characteristics and Global Range

The smaller of the two native urban doves. It has uniformly light brown plumage with heavy barring on the upperparts as well as the sides of its neck and flanks. Its eye-ring and base of the bill are a distinctive shade of light blue. This species is native to the Thai-Malay Peninsula, Sumatra and Java. However, its popularity in the bird trade means that feral populations occur in many other parts of Southeast Asia as well.

## Distribution, Abundance and Habitat

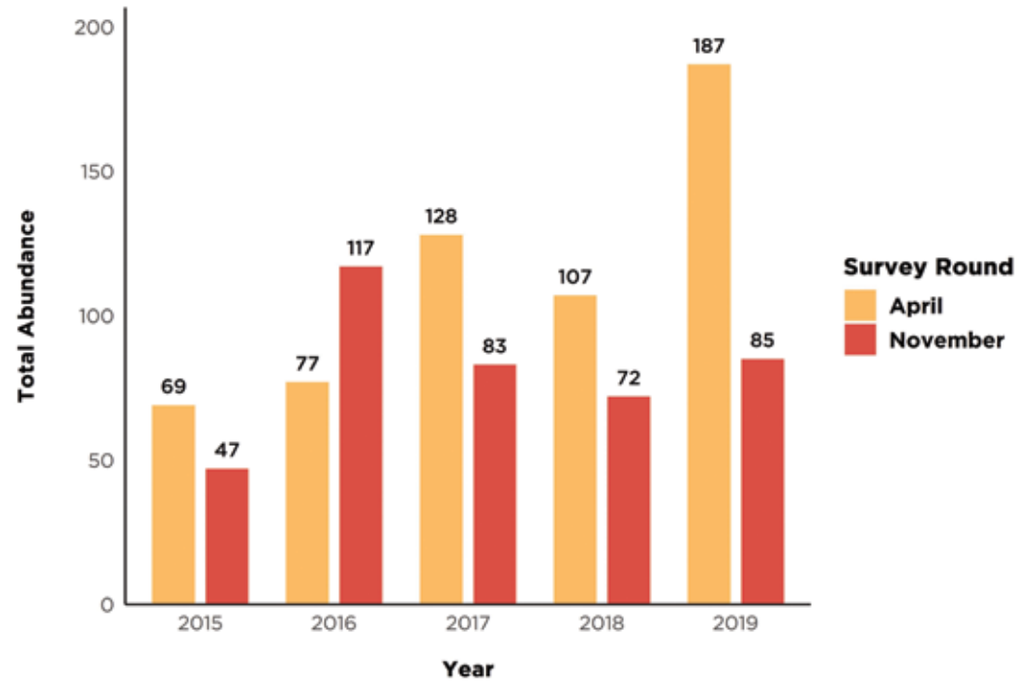
This species is widespread across Singapore and was recorded at 54 sites. The open lawns and footpaths in Singapore's parks provide a ready source of grass seeds, the preferred food of this species. Consequently, it is common and conspicuous throughout the country.

## Preliminary Trends and Conservation

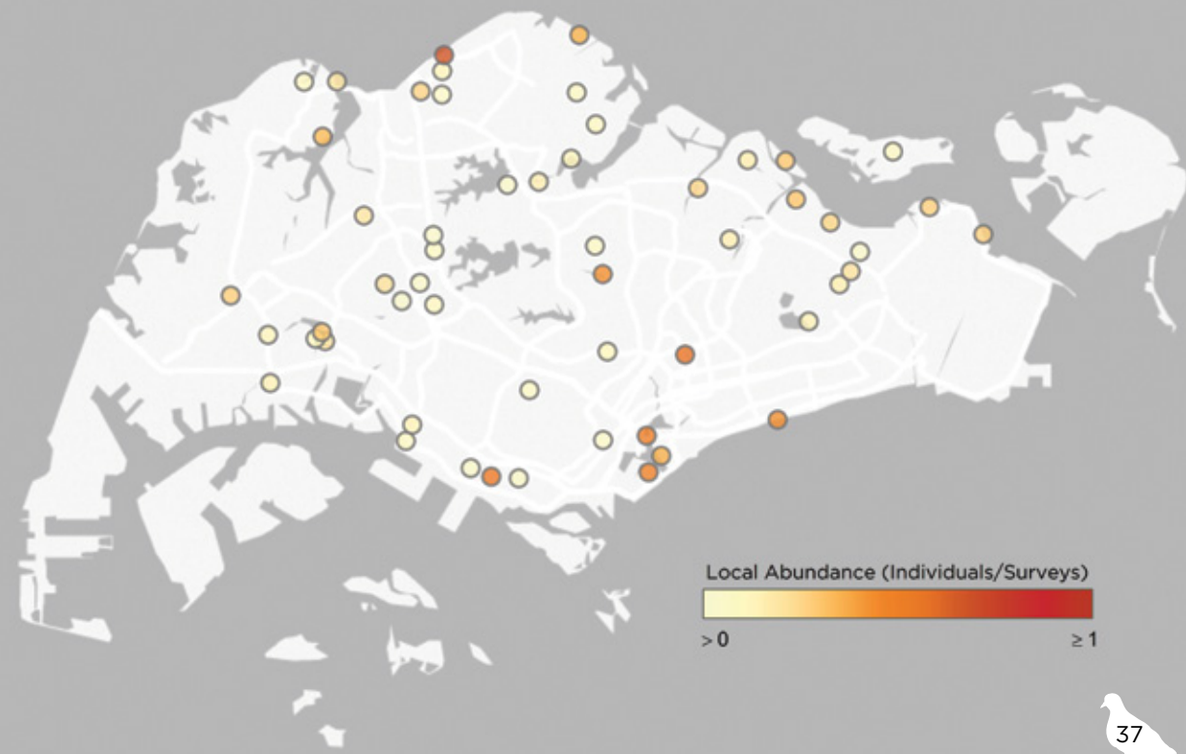
This species is popular in the bird trade due to its soothing call, and may thus be targeted by local poachers. However, the local population appears to be unaffected and increasing gradually. It generally occurs at lower numbers compared to the larger Spotted Dove (page 34).



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Pink-necked Green Pigeon

*Treron vernans*

*Photo credit: Lim Sheau Torng*

## Characteristics and Global Range

One of the most abundant garden birds in Singapore. Both sexes have olive-green plumage, a chestnut vent and red legs. Males are more attractive with a greyish face that transitions to a pinkish neck and a prominent orange breast patch. This species is widespread across Southeast Asia.

## Distribution, Abundance and Habitat

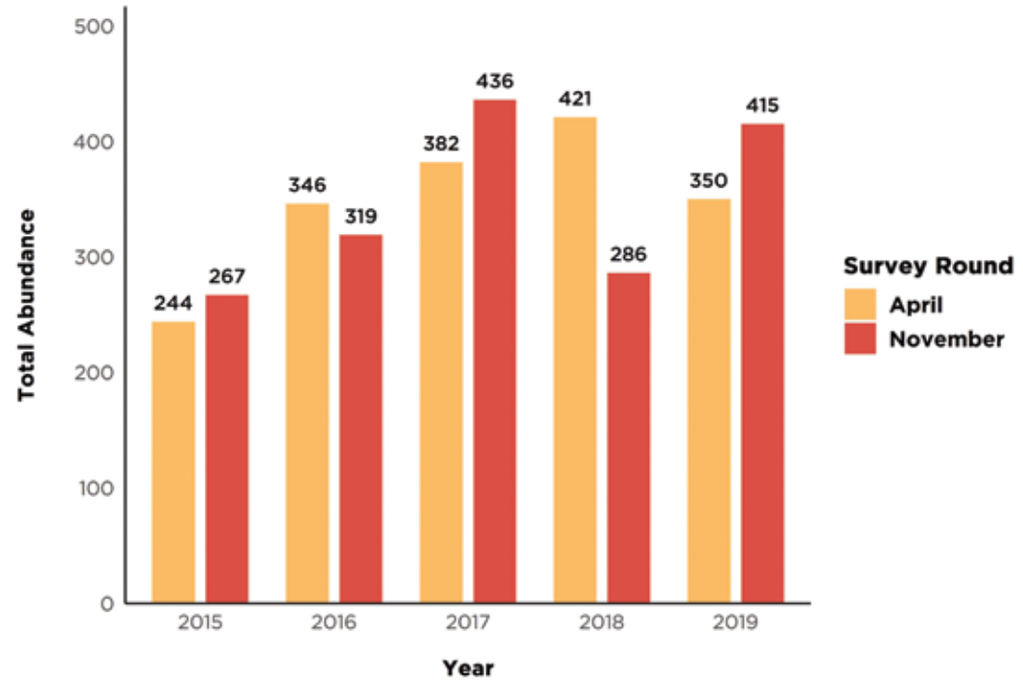
This species is abundant across Singapore. It occurs in a variety of habitats and frequently forms large flocks that congregate in the vicinity of fruiting trees.

## Preliminary Trends and Conservation

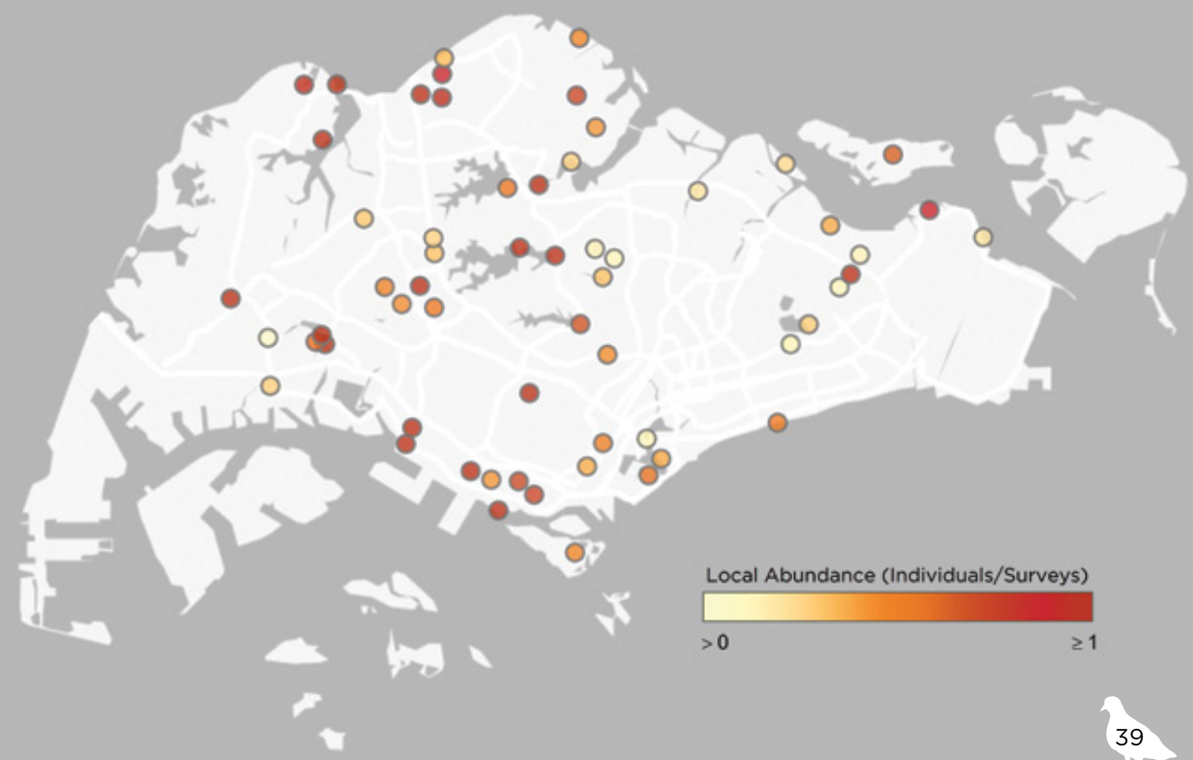
This species was by far the most abundant of the native pigeons recorded over the course of the survey period, with consistently high numbers recorded during every survey.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Asian Koel

*Eudynamys scolopaceus*

*Photo credit: Tan Rui Siang*

## Characteristics and Global Range

Well-known both as a natural biological control to the invasive House Crow (page 78) and also for the loud, far-carrying call generally uttered by males. Males are distinctive with their all-black plumage, long tail and ivory-coloured bill. Females have dark brown upperparts with numerous white streaks and bars, and whitish underparts that are heavily streaked brown. This species is found from the Indian subcontinent and southern China right through Southeast Asia. The southern China population is migratory and overwinters in Southeast Asia.

## Distribution, Abundance and Habitat

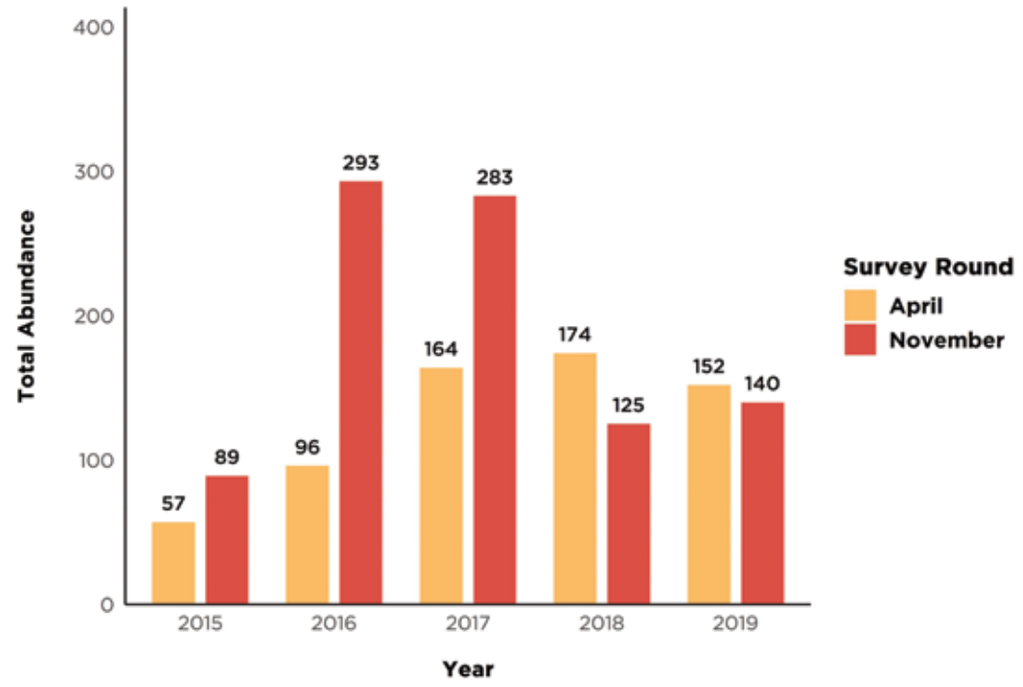
Common and widespread across Singapore, this species has adapted well to all habitats. It was more numerous in survey sites at larger parks such as Pasir Ris Park and Bishan-Ang Mo Kio Park.

## Preliminary Trends and Conservation

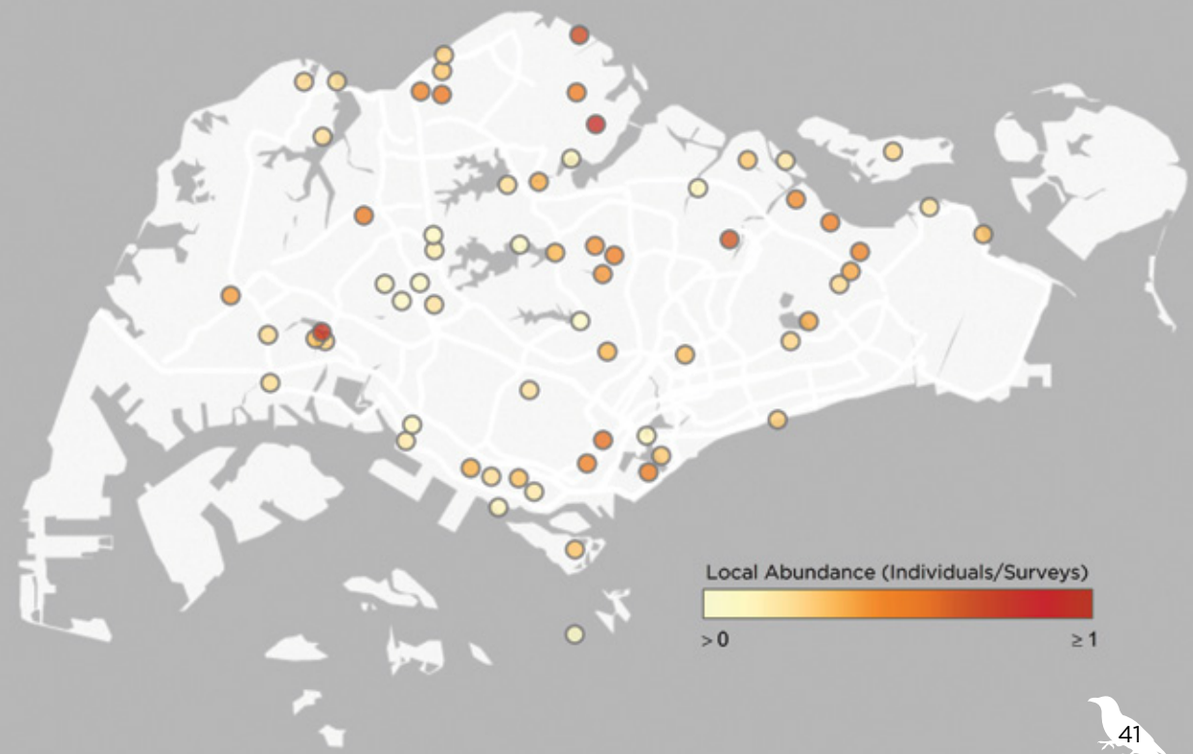
This species used to be a rare winter visitor to Singapore, with breeding first recorded in the 1990s in tandem with the range expansion of the introduced House Crow (Wells, 1999; Lim, 2009). The resident population is healthy and peaks recorded during November surveys provide evidence that migrants seasonally augment local koel numbers during the northern winter.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Oriental Dollarbird

*Eurystomus orientalis*

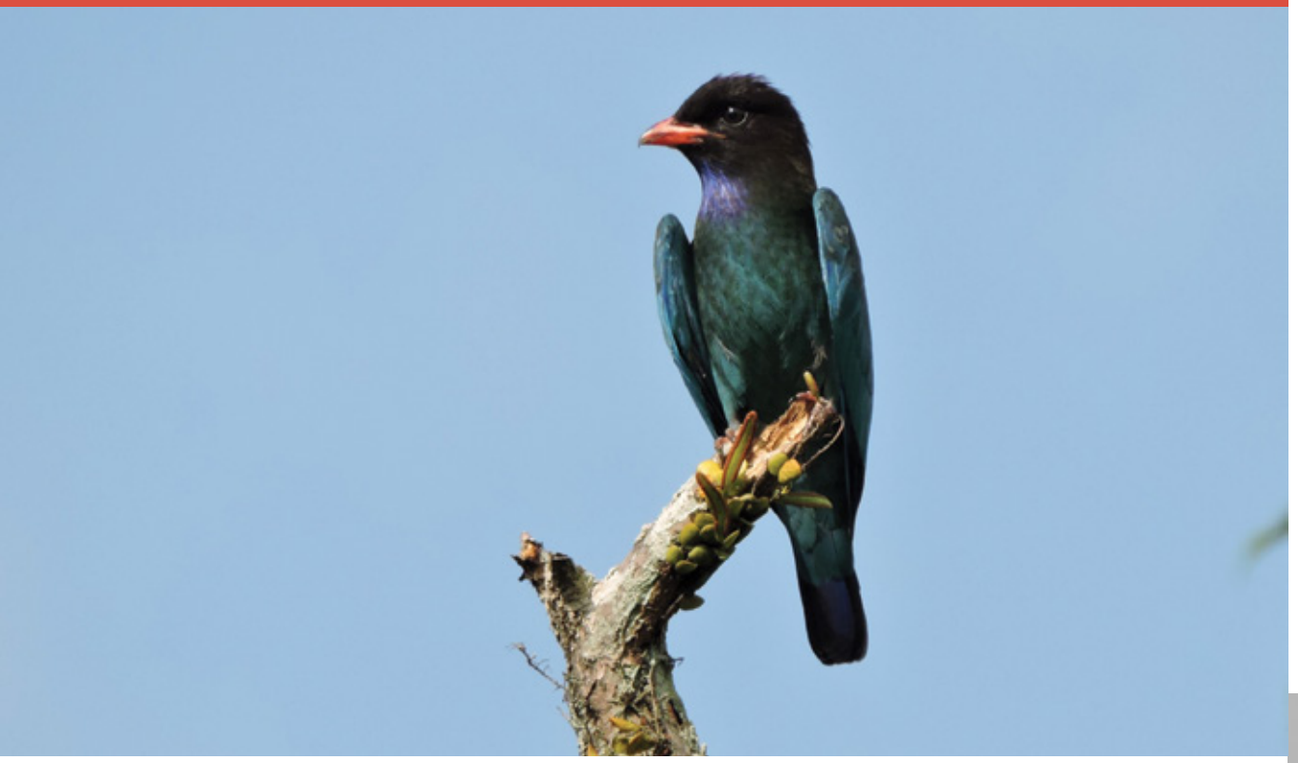


*Photo credit: Teo Ee Sin*

## Characteristics and Global Range

The only roller found in Singapore. It is easily identified by its robust orange-red bill. Its head is dark brown while the rest of its plumage is glossy blue-green which can appear black in poor light. The bluish-white patches on its wings are only visible in flight. This species is found from eastern Russia and East Asia south to Southeast Asia, Papua New Guinea and northern Australia. The northern populations migrate south to the tropics during the northern winter.

## Distribution, Abundance and Habitat

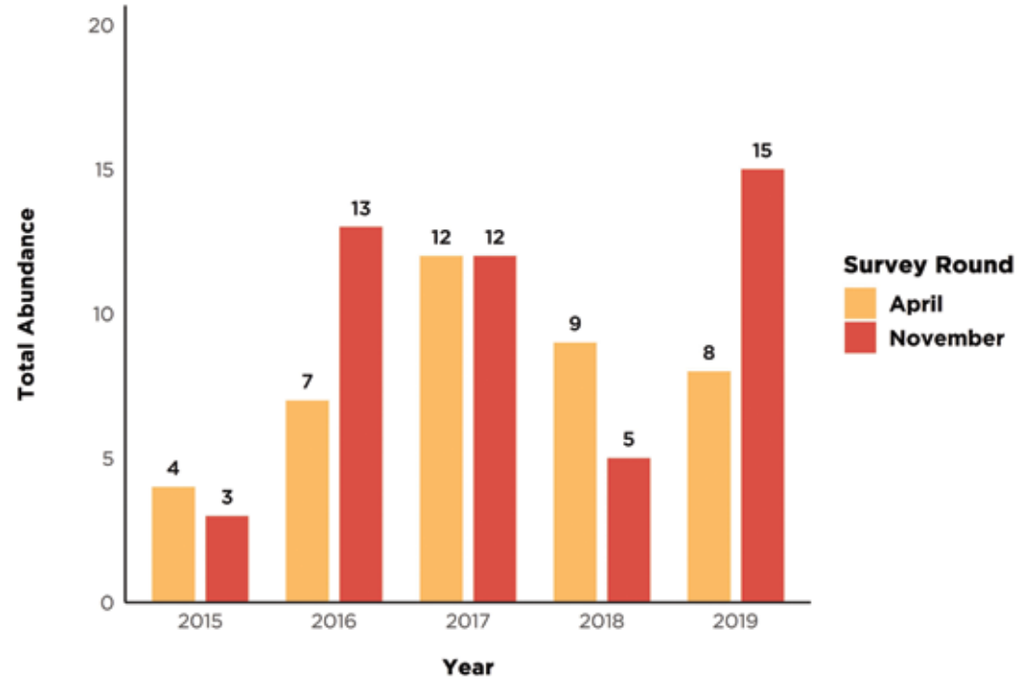
This species inhabits wooded areas where it perches at the top of tall snags scanning for insects, which are caught on the wing before its return to a favoured perch for consumption. It is widely distributed across Singapore and was recorded at 19 sites.

## Preliminary Trends and Conservation

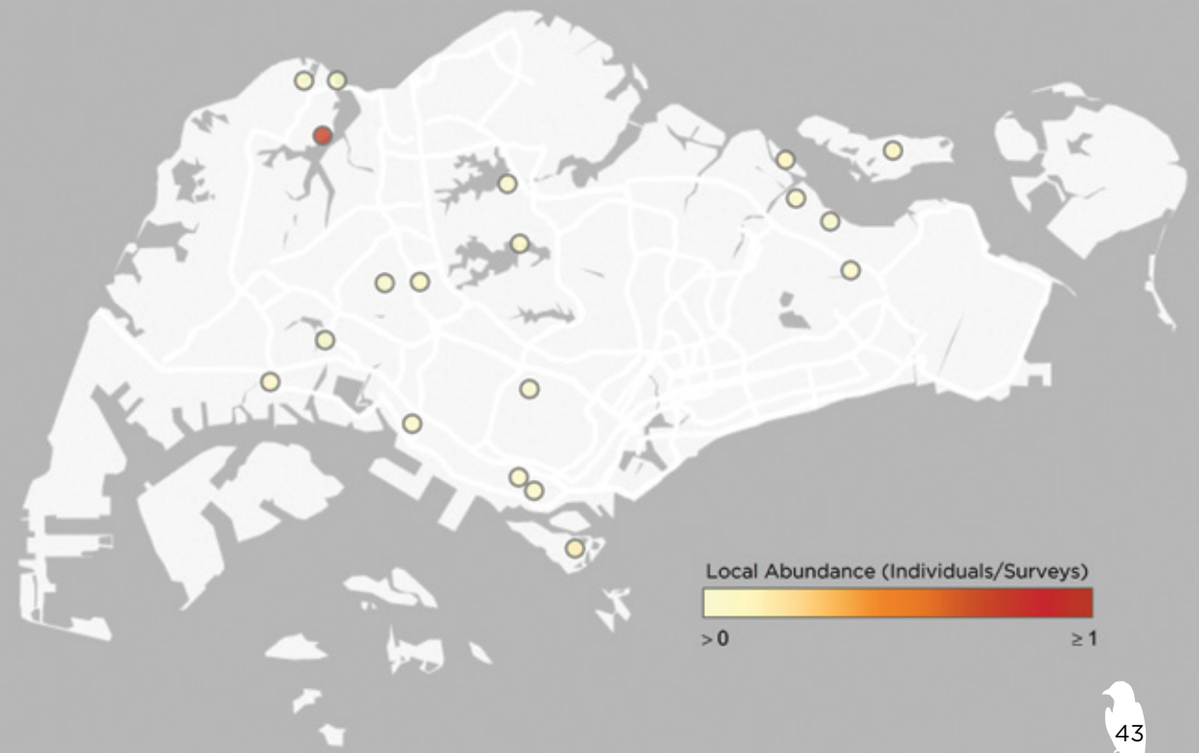
The resident population appears to be stable and is likely augmented by migratory individuals during the northern winter.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Stork-billed Kingfisher

*Pelargopsis capensis*

*Photo credit: Catalina Tong*

## Characteristics and Global Range

The largest kingfisher in Singapore. This distinctive bird has a robust red bill, pale brown head and orange underparts, with a blue back, wings and tail. This species is found across the Indian subcontinent and Southeast Asia.

## Distribution, Abundance and Habitat

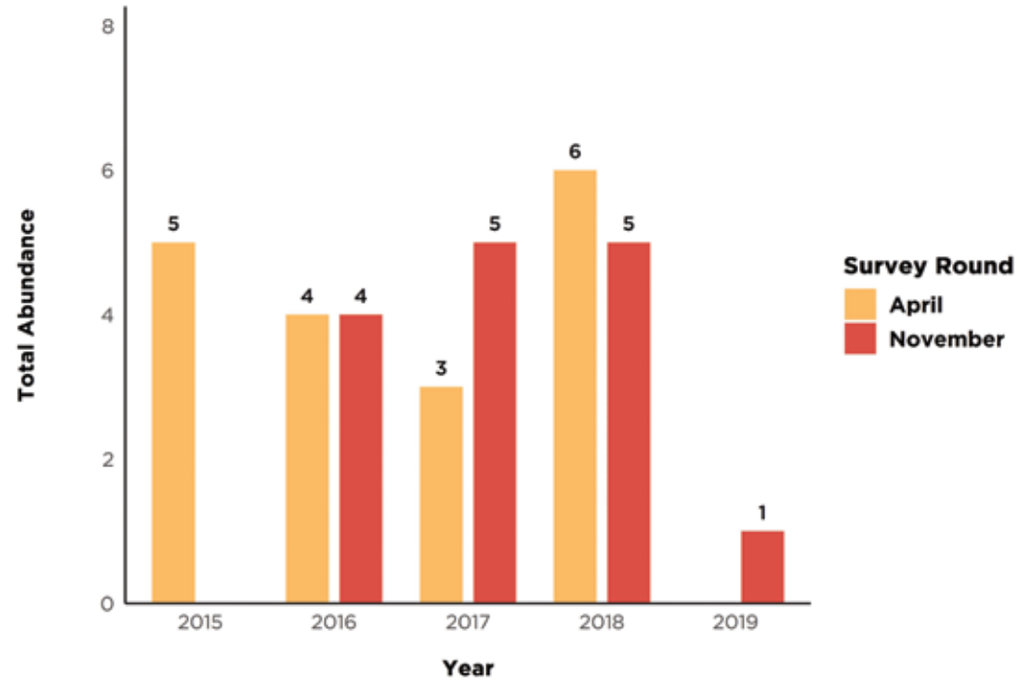
An uncommon resident of mangroves and forested water bodies, this species appears to be slowly expanding its distribution in Singapore. It was recorded at 14 sites including some of the larger parks such as Jurong Lake Gardens and Bishan-Ang Mo Kio Park.

## Preliminary Trends and Conservation

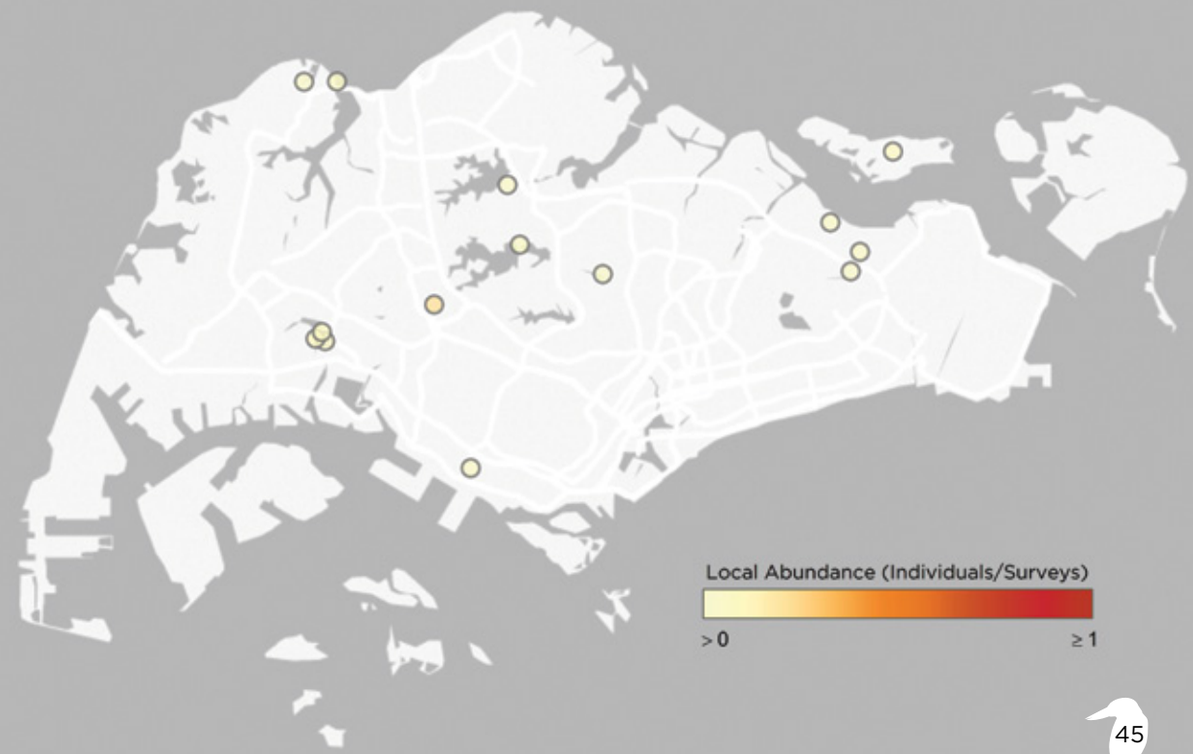
The population of this large kingfisher appears to be stable and may be expanding in line with the presence of wooded water bodies in many newer parks in Singapore.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# White-throated Kingfisher

*Halcyon smyrnensis*

*Photo credit: Fabius Tan*

## Characteristics and Global Range

The only kingfisher in Singapore with a combination of chocolate-brown head and underparts, large white throat patch and blue back, tail and wings. Its bright red bill is also distinctive. Both sexes are similar in appearance. This species has a wide distribution from Egypt and the Middle East through to Southeast Asia.

## Distribution, Abundance and Habitat

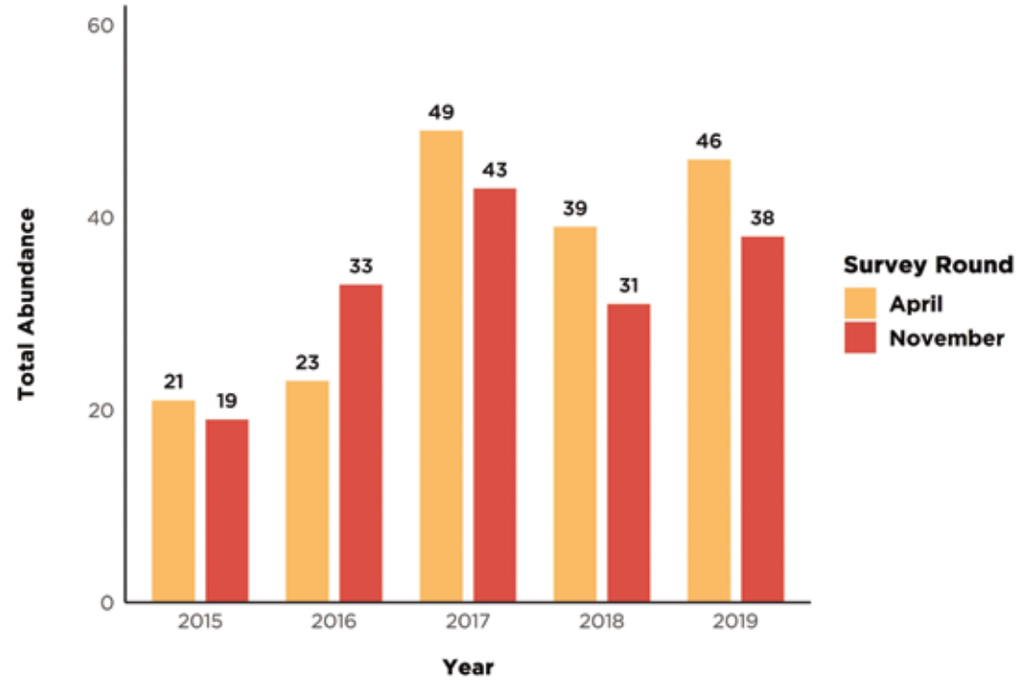
The less common of the two urban kingfishers recorded in Singapore, this species is usually observed close to water, unlike the much more common Collared Kingfisher (page 48). This is reflected in the survey results where the species was most regularly recorded at sites with large water bodies like Tampines Eco Green and Gardens by the Bay.

## Preliminary Trends and Conservation

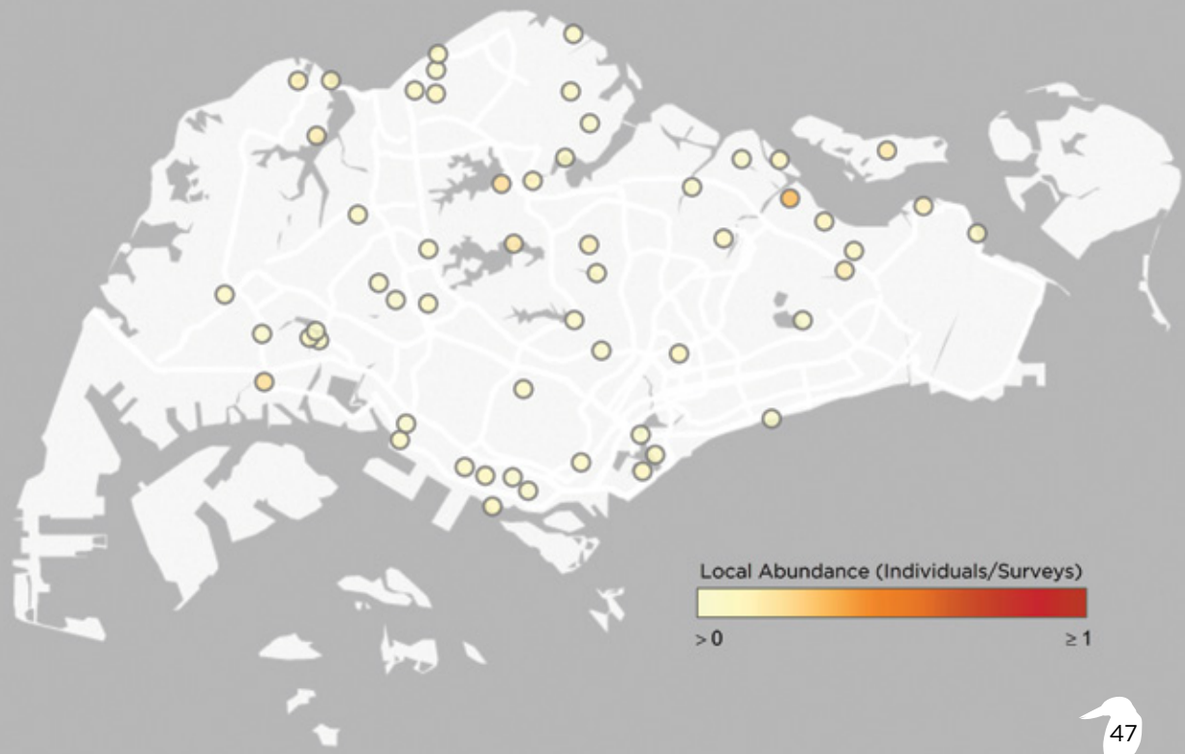
This species appears to have benefitted from the presence of permanent water bodies in many of Singapore's parks, with an upward trend observed over the survey period.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Collared Kingfisher

*Todiramphus chloris*

*Photo credit: Bryan Lim*

## Characteristics and Global Range

The most abundant of Singapore's kingfishers. It is readily identified by its blue-and-white plumage and broad white neck collar. This species is widely distributed across Southeast Asia, Australasia and east to the Pacific Islands.

## Distribution, Abundance and Habitat

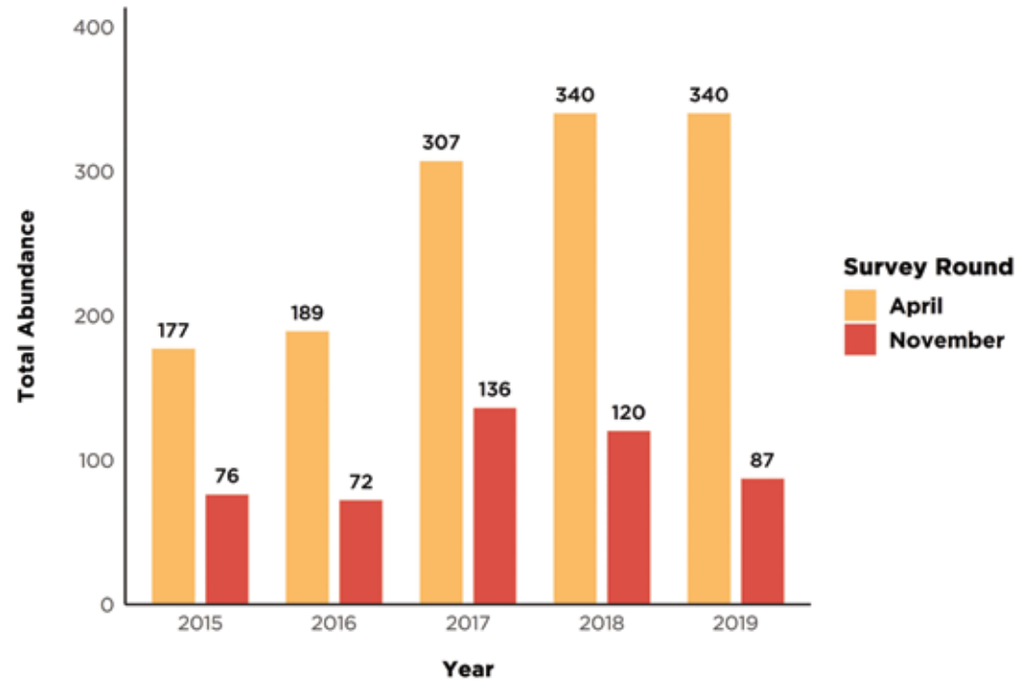
An example of a traditionally coastal species that has adapted supremely to Singapore's urban greenery, this species was recorded at 60 survey sites. As with other species in this category, the highest single counts are still from coastal sites such as East Coast Park and Sungei Buloh Wetland Reserve.

## Preliminary Trends and Conservation

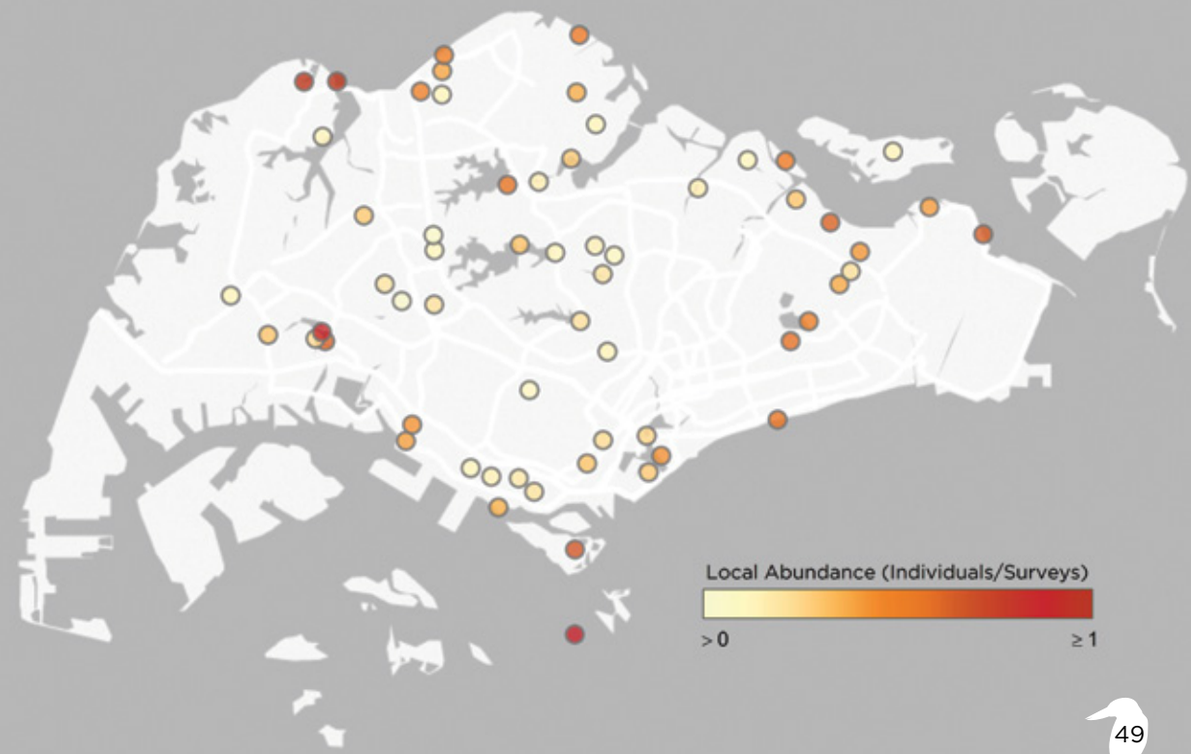
Intriguingly, this species was consistently more numerous during the breeding season surveys in April. The reasons for this are currently unknown but might be suggestive of post-breeding dispersal by adult pairs.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Blue-tailed Bee-eater

*Merops philippinus*

*Photo credit: Francis Yap*

## Characteristics and Global Range

Both sexes are similar in appearance. Its black mask contrasts sharply with an orange throat. It has a yellow-brown crown, nape and back, transitioning to bluish wings and tail, and underparts that are green with a light blue vent. This species is widely distributed across Asia with breeding populations on the Indian subcontinent and southern China migrating to Southeast Asia during the northern winter.

## Distribution, Abundance and Habitat

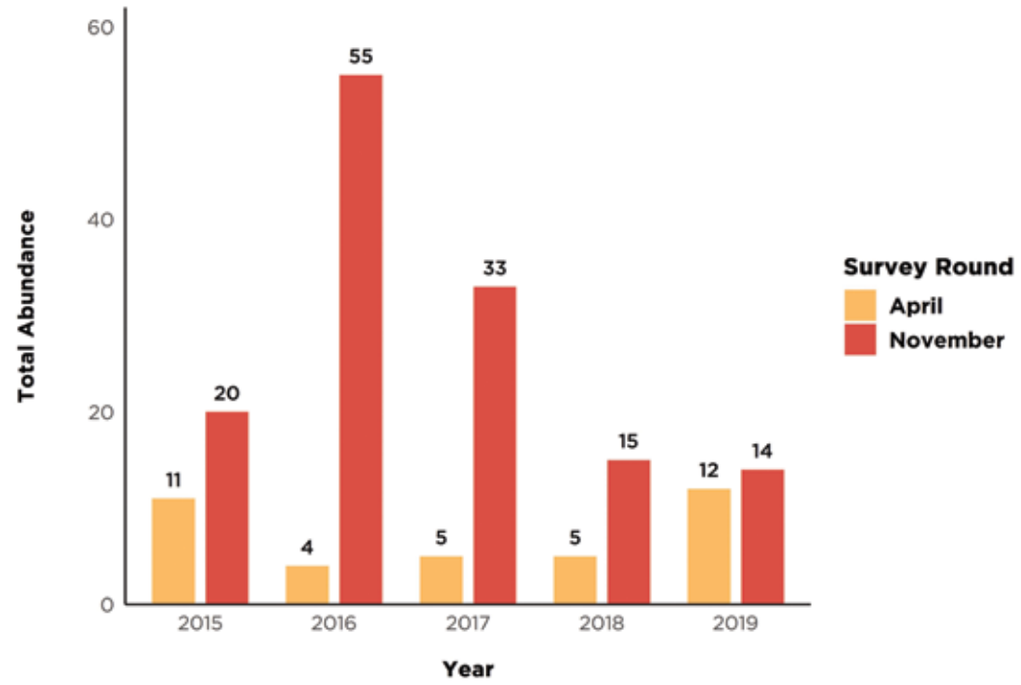
A migratory species that is commonly encountered in urban areas, this bird generally favours wooded habitats with tall trees which are used as hunting perches. The antennae on buildings have proven to be an adequate substitute and this bird is now readily encountered on the rooftops of buildings as well.

## Preliminary Trends and Conservation

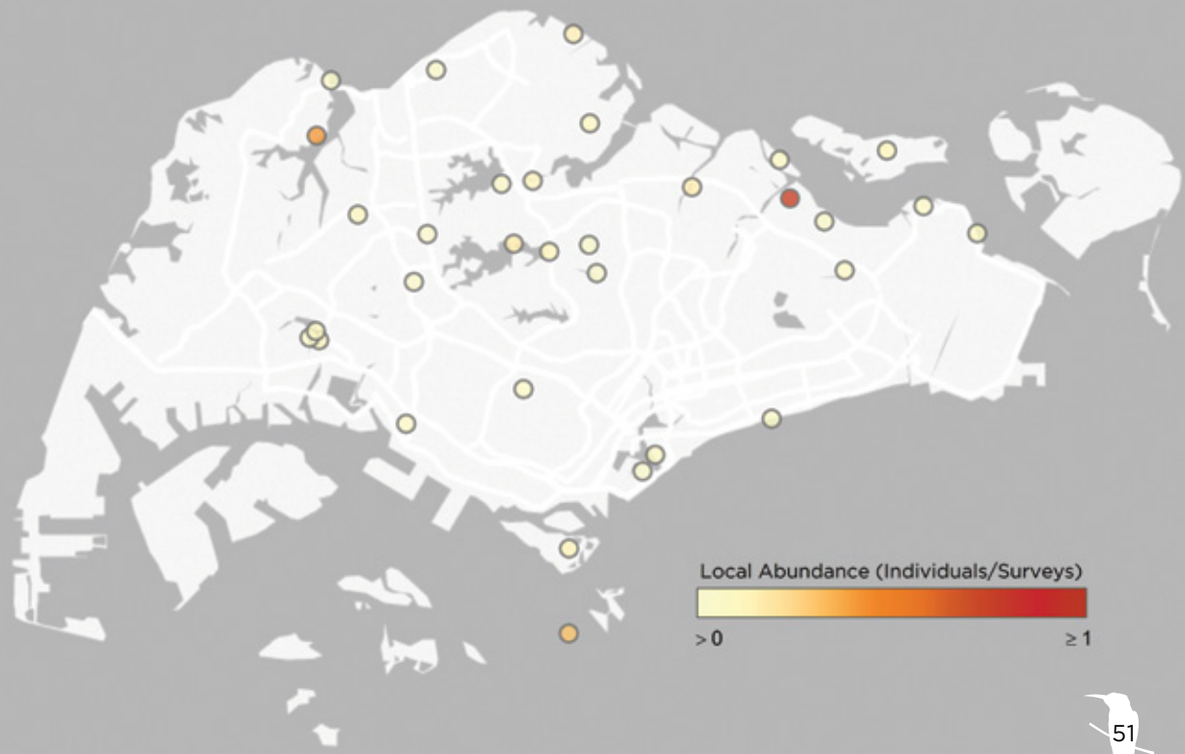
The bulk of the records originate from the November surveys, as most of the birds would have commenced their return migration by the time the April surveys commence.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Blue-throated Bee-eater

*Merops viridis*

*Photo credit: Nikki Chiang*

## Characteristics and Global Range

An attractive bird with a distinctive combination of chocolate-brown crown, bright blue throat and otherwise green plumage with blue rump and tail. Sexes are similar in appearance, while juveniles have a bluish-green head and lack the elongated tail streamers of adults. This species occurs from southern China through much of Southeast Asia to the islands of Sumatra, Java and Borneo.

## Distribution, Abundance and Habitat

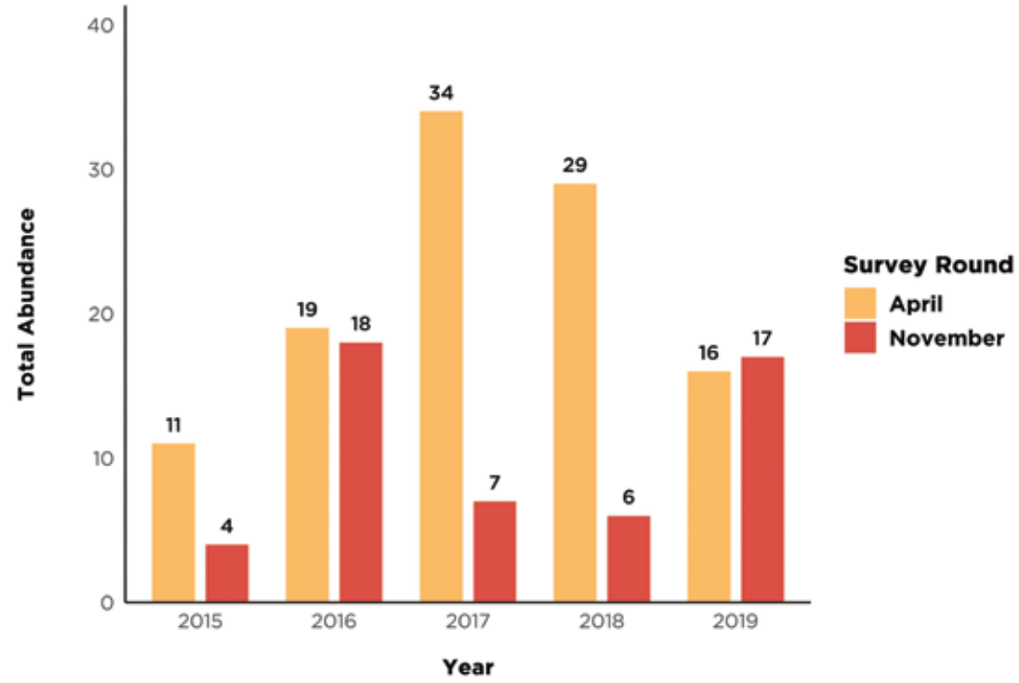
This species is widely distributed across Singapore and was recorded from 31 sites across the island. Compared to the Blue-tailed Bee-eater (page 50), this species appears to favour more heavily wooded areas and this was reflected in the sites where it was found, such as the Southern Ridges and various well-wooded parks.

## Preliminary Trends and Conservation

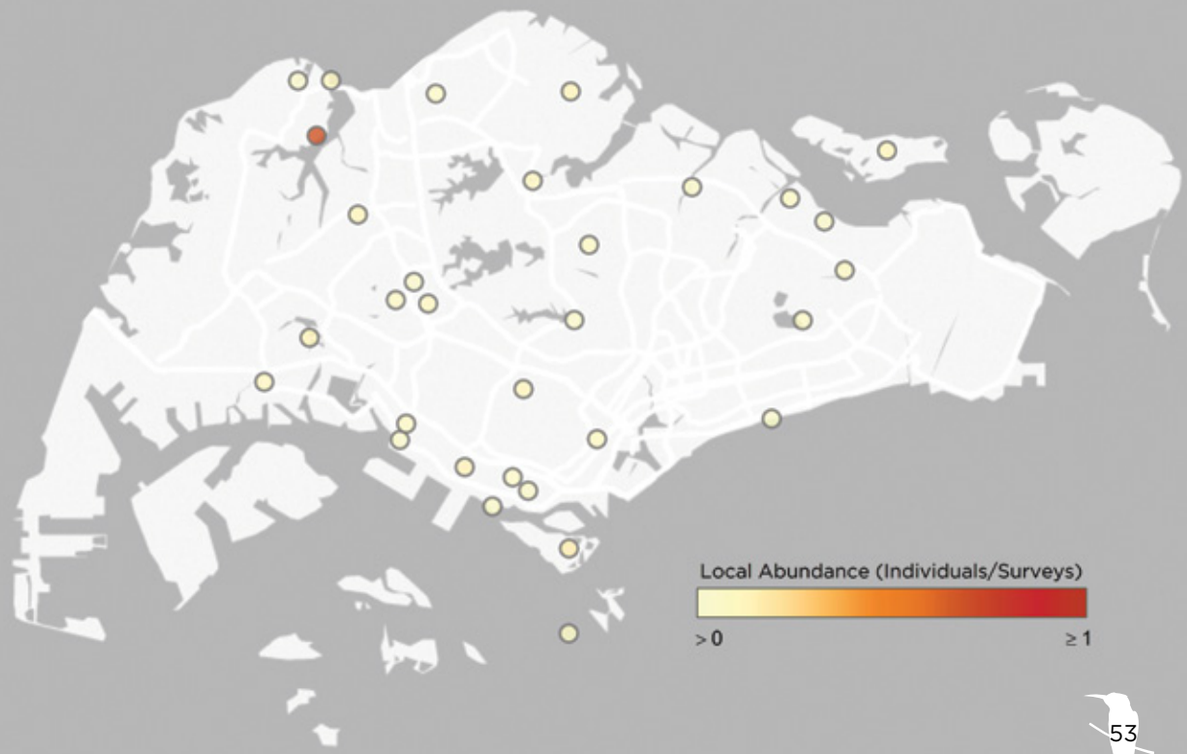
This bird is a migrant breeder in Singapore, with many adults dispersing to Sumatra during the northern winter (Lim, 2009). This was reflected in the survey results, with the bulk of the sightings generally occurring during the April surveys when adults return to Singapore to breed.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Oriental Pied Hornbill

*Anthracoceros albirostris*

*Photo credit: David Wirawan*

## Characteristics and Global Range

An unmistakable bird. Both sexes have pied plumage that is black above and white below with bluish facial skin and a light yellow casque and bill. Females have a much reduced casque and black patches on the bill. This species has a wide distribution extending from northern India to the islands of Sumatra, Java and Bali.

## Distribution, Abundance and Habitat

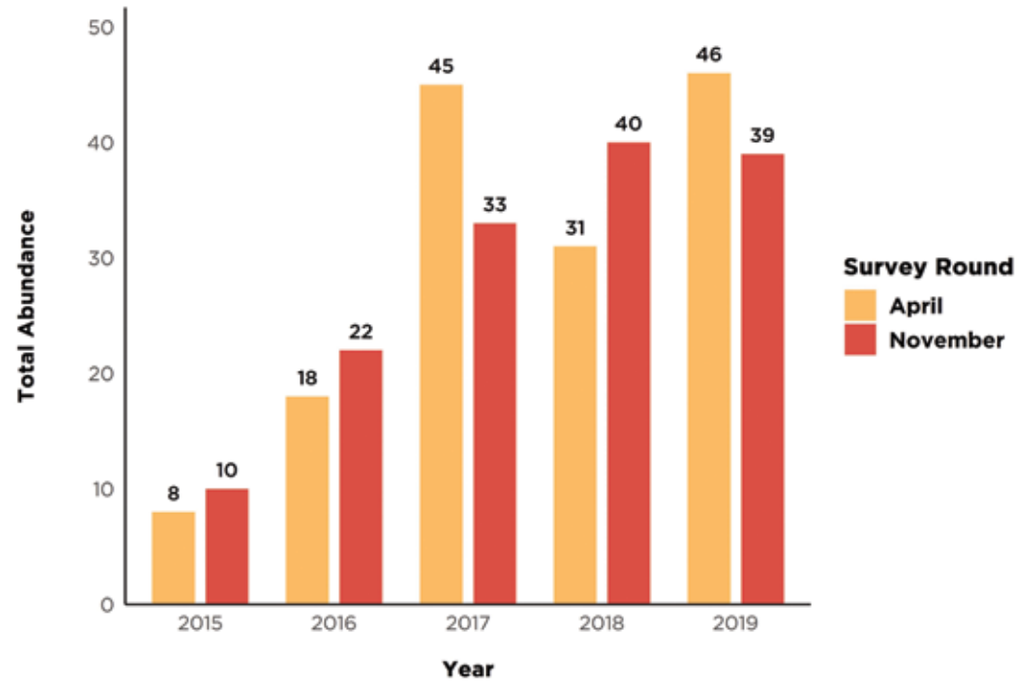
This species is now widely distributed across Singapore and was recorded at 21 survey sites across the island. A bird of secondary growth, it was not recorded at sites adjacent to the nature reserves. Unsurprisingly, the single highest counts were from sites in eastern Singapore such as Pasir Ris Park and Pulau Ubin, where the species was first rediscovered in the 1990s.

## Preliminary Trends and Conservation

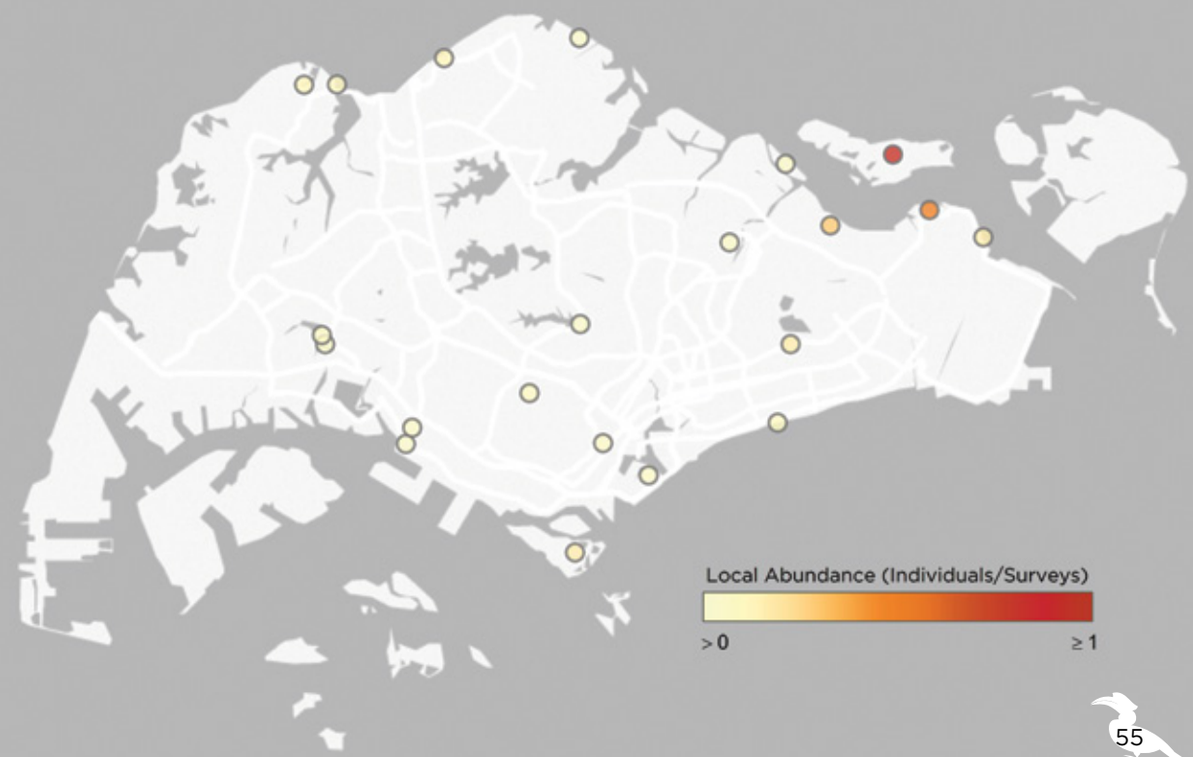
This bird is a conservation success story and the local population has been steadily increasing. First documented on Pulau Ubin in 1994, it subsequently colonised the main island at Changi in 1997 and has since been spreading westwards, thanks to extensive conservation efforts such as habitat enhancement at various parks.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Lineated Barbet

*Megalaima lineata*

*Photo credit: Ong Zhen Quan*

## Characteristics and Global Range

A large barbet with a whitish head and underparts that are heavily streaked brown, with an emerald-green back, wings and tail. It also has a robust, flesh-coloured bill and yellow skin around the eye. Sexes are similar in appearance. This species is distributed across northern India and mainland Southeast Asia as well as on the islands of Java and Bali.

## Distribution, Abundance and Habitat

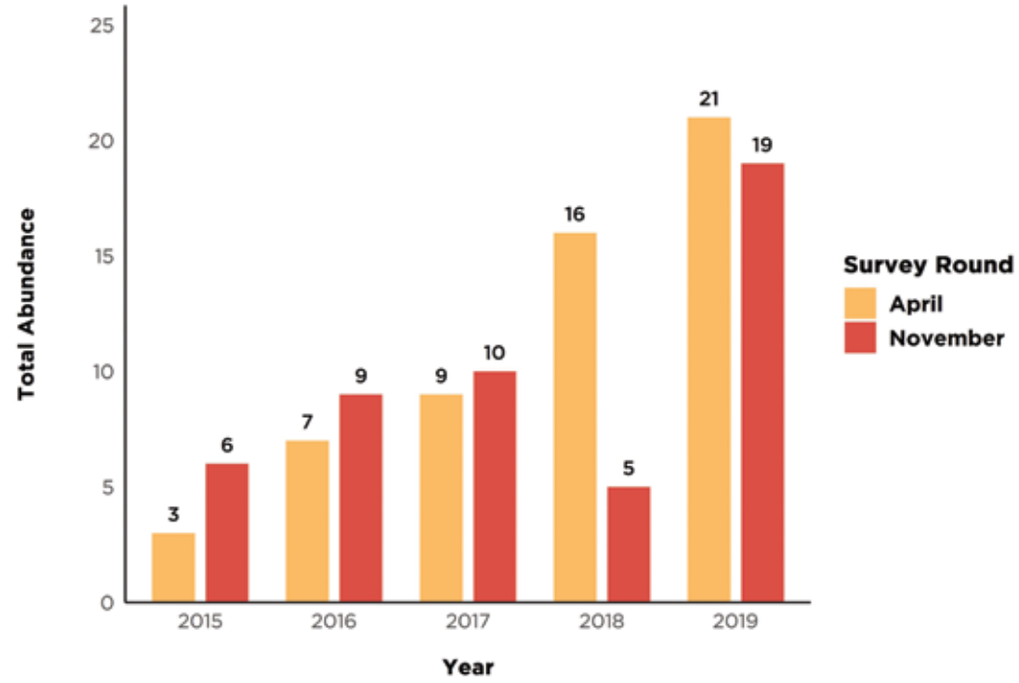
This introduced species was first recorded at Bukit Batok Nature Park in 1997. It is now firmly established across the western half of Singapore and was recorded at 18 sites. The vast majority of these sites are large, well-wooded parks with many fruiting trees. It is highly arboreal and congregates around favoured fruiting trees.

## Preliminary Trends and Conservation

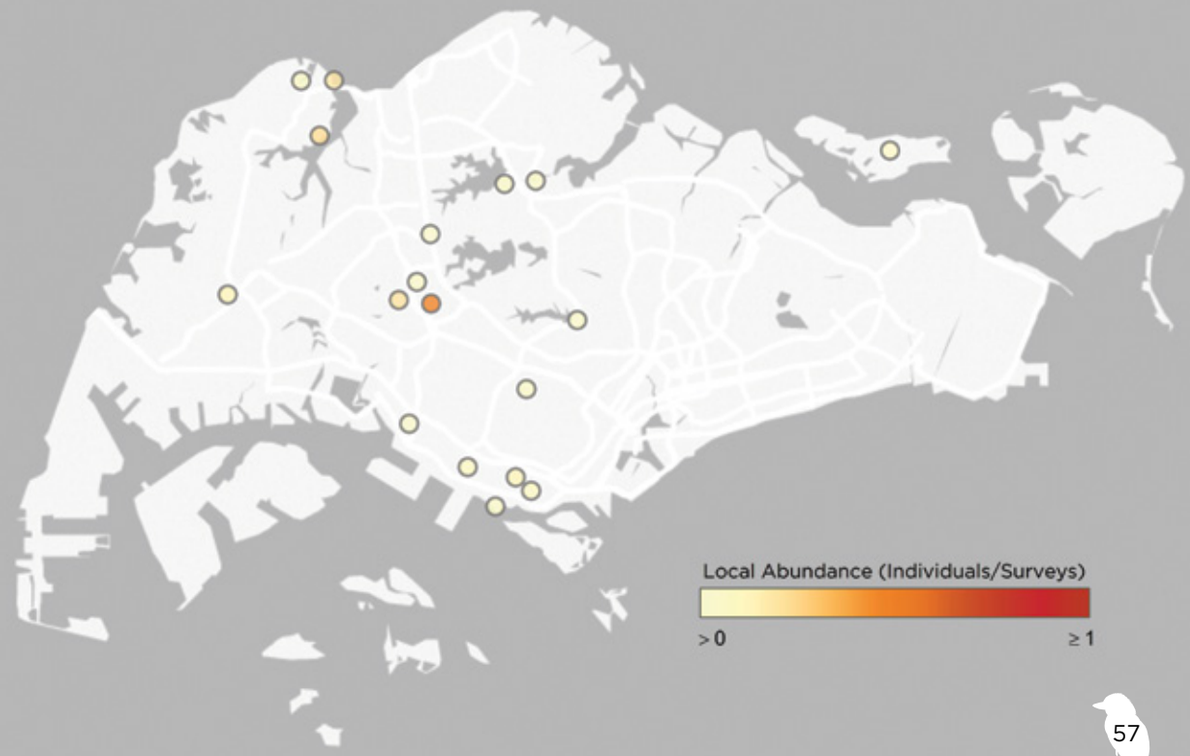
The impact of this introduced species on other frugivores is currently unknown. It was introduced to Singapore, presumably via the bird trade, and is now well established. The local population has been on the increase and is spreading east, as evidenced by its recent colonisation of the Singapore Botanic Gardens.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Sunda Pygmy Woodpecker

*Dendrocopus moluccensis*

*Photo credit: @takeyourtime_ii*

## Characteristics and Global Range

Singapore's smallest woodpecker. Both sexes sport a brown crown and eye-stripe, with dirty white underparts streaked brown, and wings heavily spotted with white. Males have a red streak on the side of the crown that is difficult to see in the field. This species occurs from Peninsular Malaysia south to the islands of eastern Indonesia and Borneo.

## Distribution, Abundance and Habitat

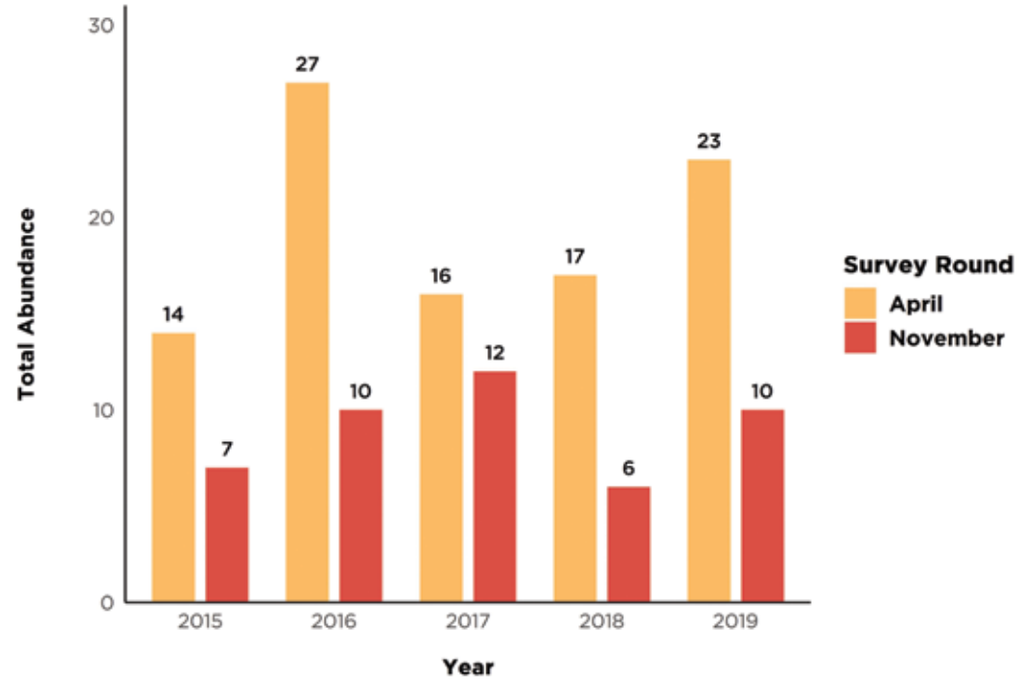
Like the Common Flameback (page 60), this woodpecker has adapted to the urban environment in Singapore. This species was recorded at 36 sites surveyed. The highest single counts were from coastal parks such as East Coast Park and Pasir Ris Park that contain good numbers of the Yellow Flame (*Peltophorum pterocarpum*), a tree that this species favours for foraging and nesting.

## Preliminary Trends and Conservation

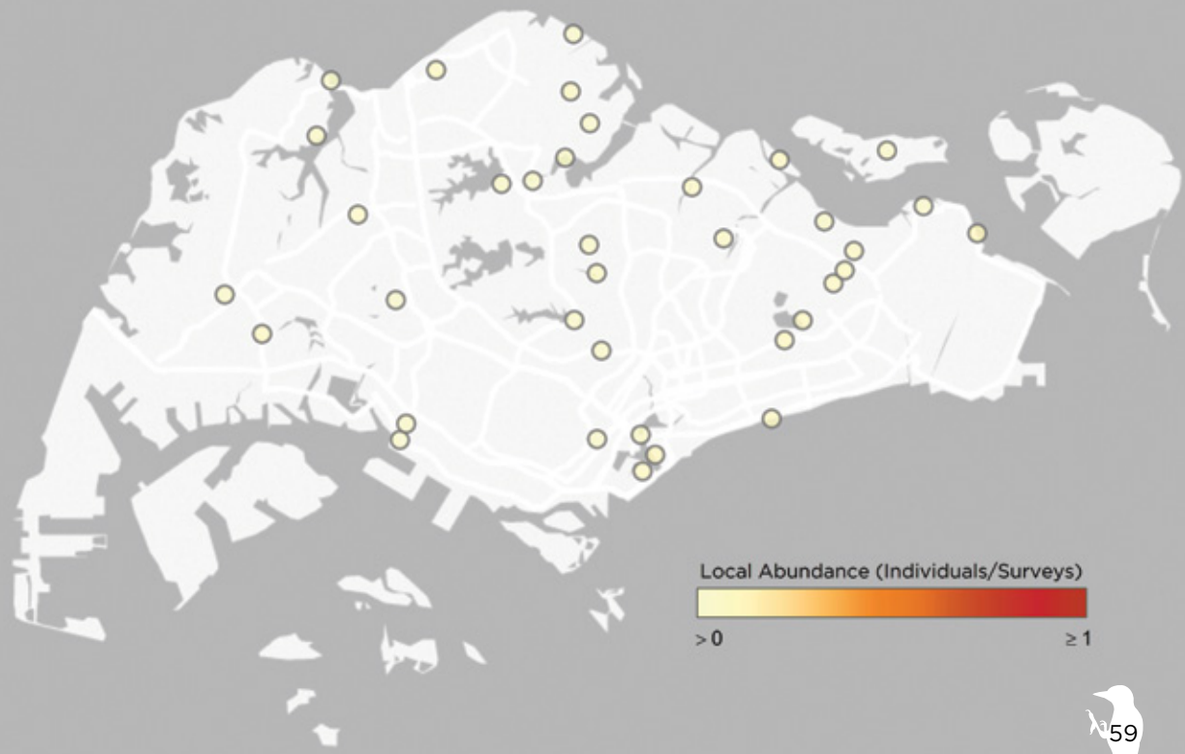
Like many of the smaller garden birds, this species appears to be more readily detected in the breeding season surveys in April when breeding pairs are vocal and conspicuous.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Common Flameback

*Dinopium javanense*

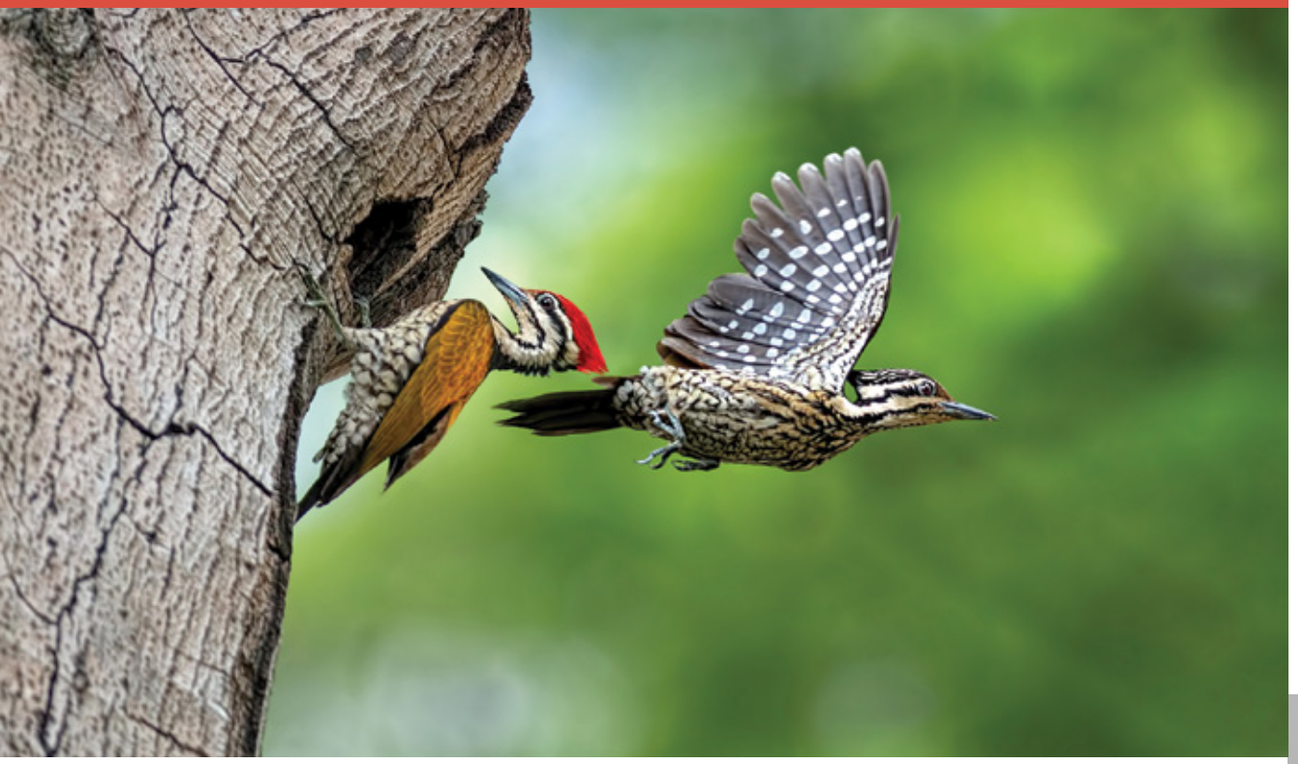


*Photo credit: Fu Shing On*

## Characteristics and Global Range

The most commonly encountered “large” woodpecker in Singapore. Both sexes have a striking golden-yellow back and wings with black-scaled white underparts and a distinctive facial pattern comprising a black eye-stripe and thin black moustache. Males have a crimson-red crest while females have a black crest spotted with white. This species is found throughout much of Southeast Asia.

## Distribution, Abundance and Habitat

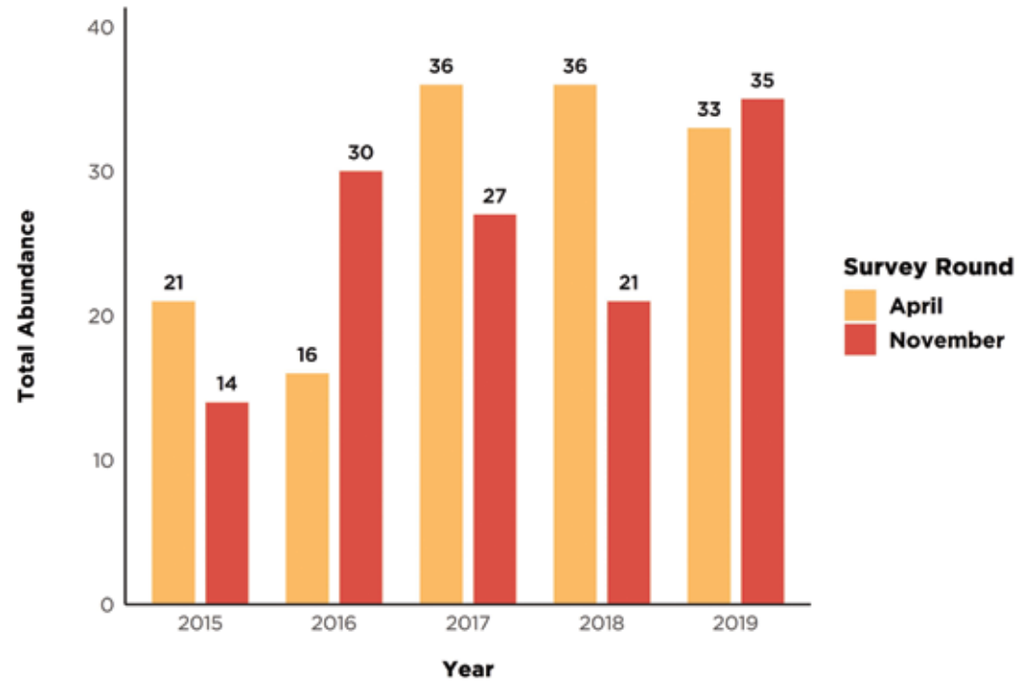
Traditionally regarded as a bird of secondary forest and mangroves, it has proven to be highly adaptable and is now widespread across Singapore. This species was recorded at 44 sites and the highest counts are from coastal areas such as Pasir Ris Park, Coney Island Park and Sungei Buloh Wetland Reserve.

## Preliminary Trends and Conservation

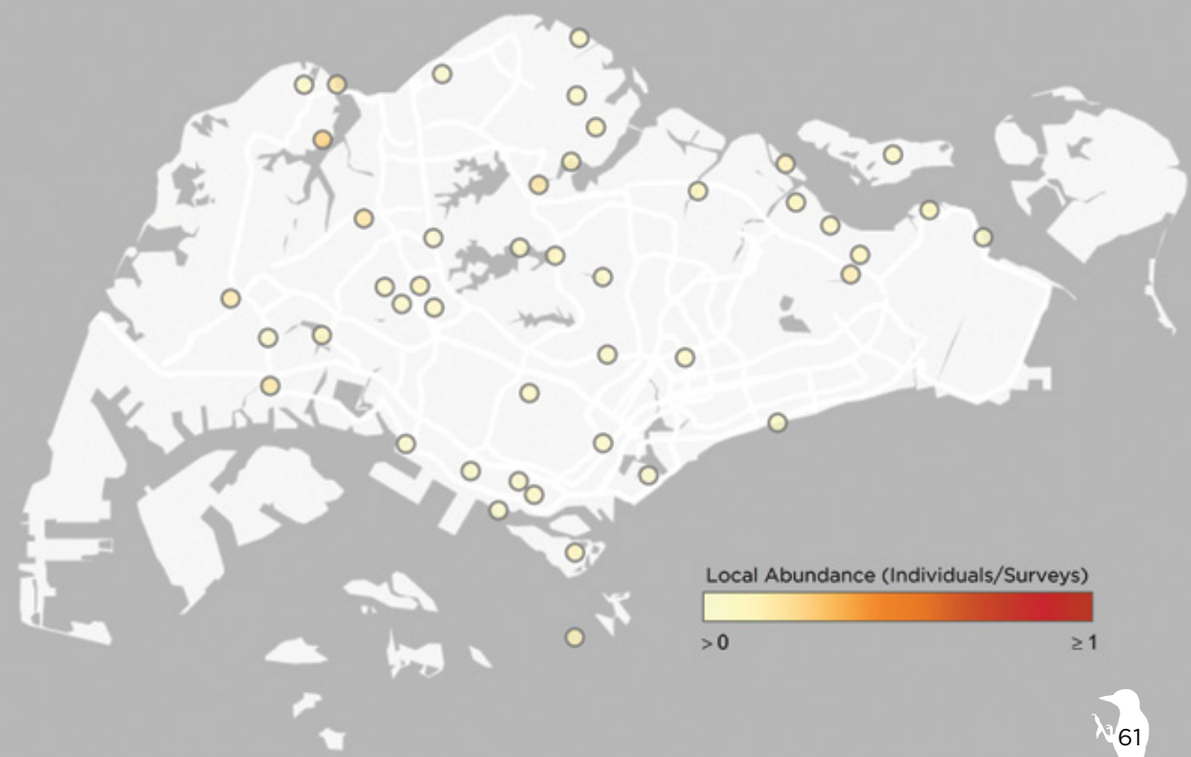
The maturing of planted trees throughout Singapore appears to have benefitted this species through the provision of additional foraging and nesting resources, and this is reflected in the upward trend for individuals observed during the breeding season surveys in April.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Long-tailed Parakeet

*Psittacula longicauda*

*Photo credit: Sandra Chia*

## Characteristics and Global Range

Singapore's only native parakeet. Males are distinctive with a bright red bill and pink face that contrasts with a dark green crown, black moustache and light green underparts. Females are duller with light pink cheeks and a black bill. This species is found on the Andaman and Nicobar Islands as well as southern Thailand, the Malay Peninsula, and the islands of Sumatra and Borneo.

## Distribution, Abundance and Habitat

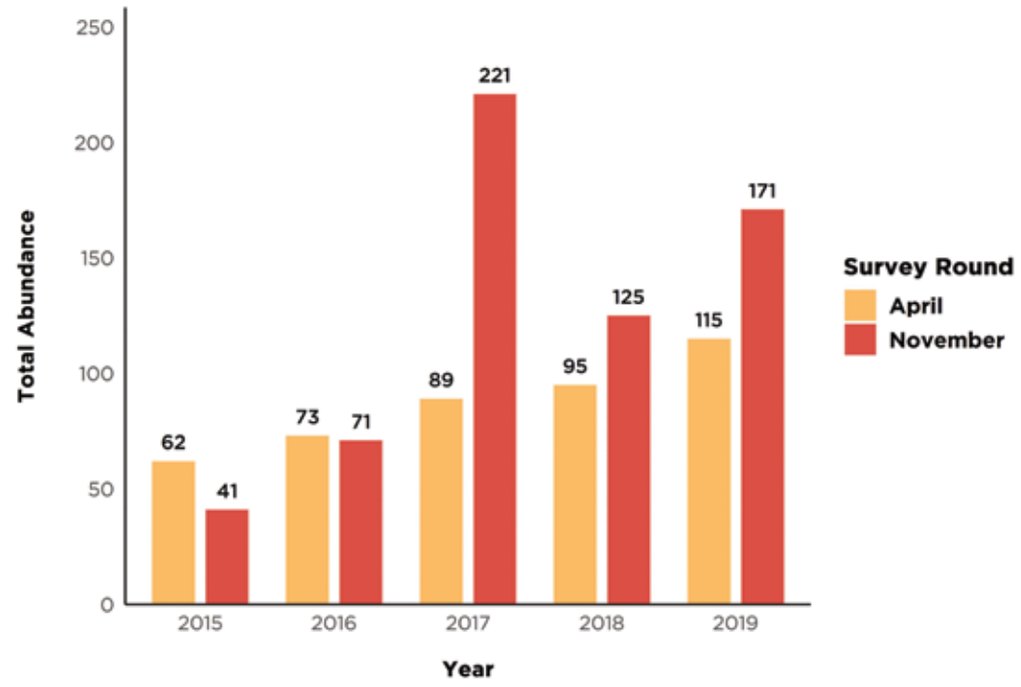
This species is widespread throughout Singapore and was recorded at 42 sites. Generally associated with lowland forests and forest edges, it was regularly spotted in parks on the edge of the nature reserves. The local population appears to have adapted well to urban areas with good numbers reported at larger sites such as Gardens by the Bay, Pasir Ris Park and Singapore Botanic Gardens.

## Preliminary Trends and Conservation

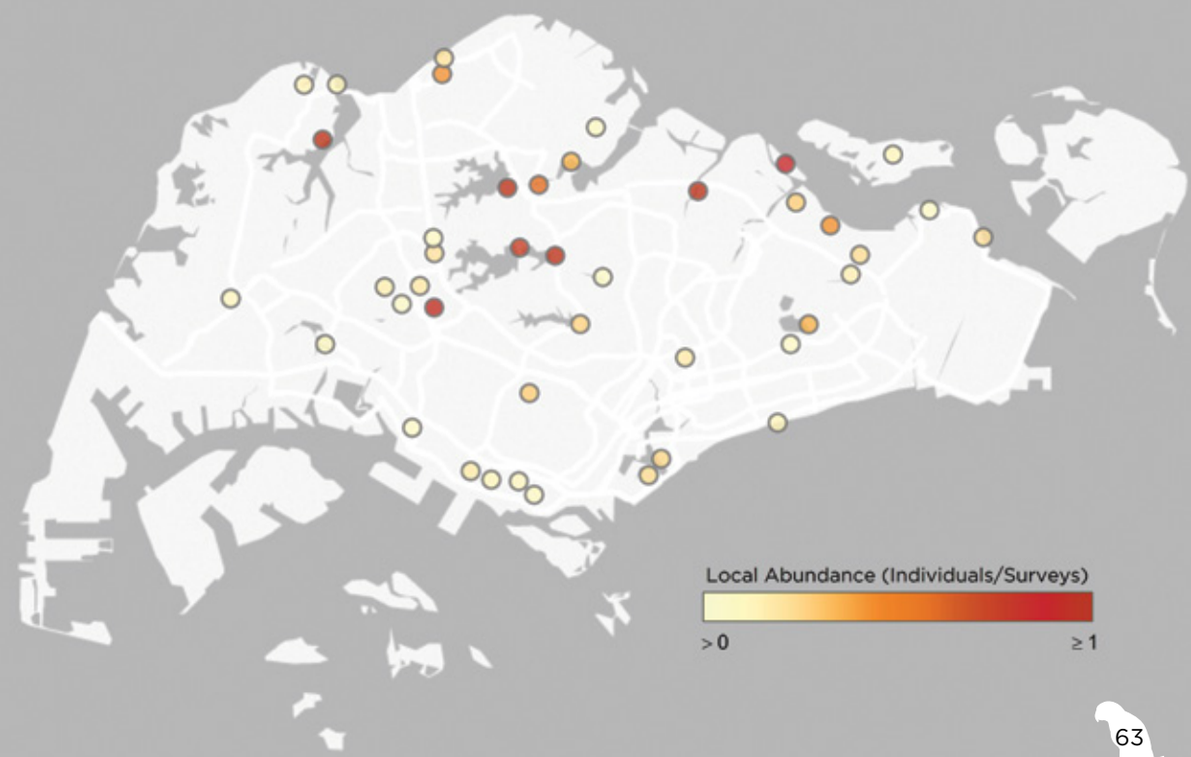
Based on ongoing deforestation of its native range and its being trapped for food and the pet bird trade, this species was recently uplisted to globally Vulnerable by IUCN. In Singapore, despite the presence of other introduced parakeets, this species appears to be holding its own with an upward trend in the number of individuals observed over the survey period.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Common Iora
*Aegithina tiphia*

*Photo credit: Dillen Ng*

## Characteristics and Global Range

A very attractive yet easily overlooked bird of the tree canopy in urban parks. Males are stunning in breeding plumage with a black crown, mantle, wings and tail that contrasts sharply with yellow underparts. Females and non-breeding plumaged males have an olive-green crown and mantle, blackish wings and yellow underparts. Both sexes have two prominent white wing bars. This species is distributed from the Indian subcontinent east through mainland Southeast Asia and the islands of Sumatra, Java and Borneo.

## Distribution, Abundance and Habitat

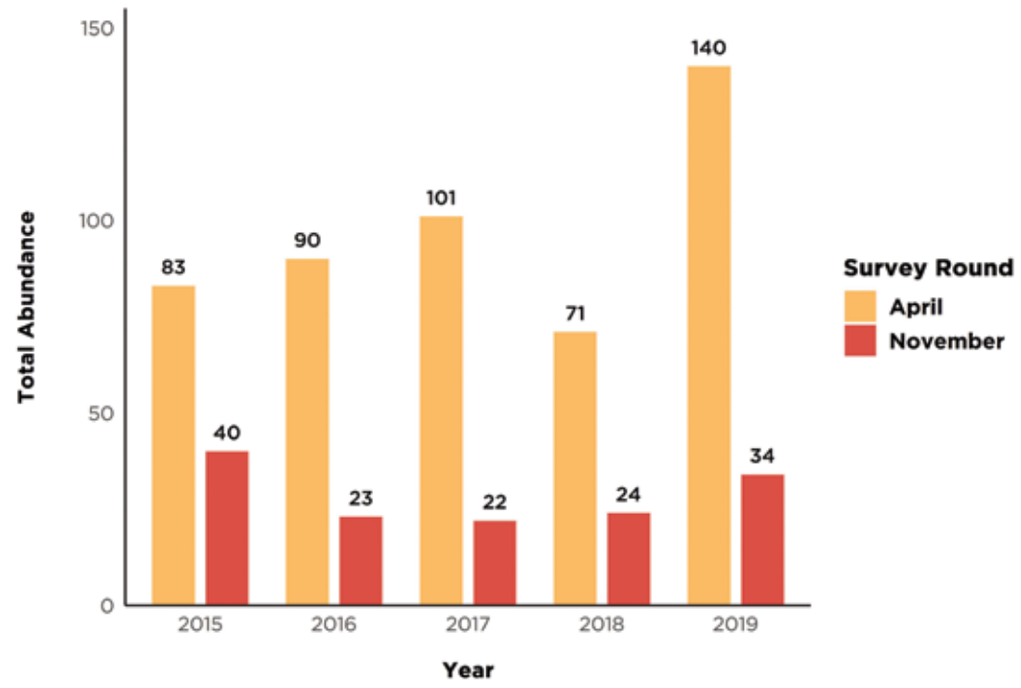
This species is common throughout Singapore and was recorded at 55 sites. As it is traditionally associated with mangroves and coastal scrub, the highest single counts were from sites that fit this bill such as Pulau Ubin, Admiralty Park and Sungei Buloh Wetland Reserve.

## Preliminary Trends and Conservation

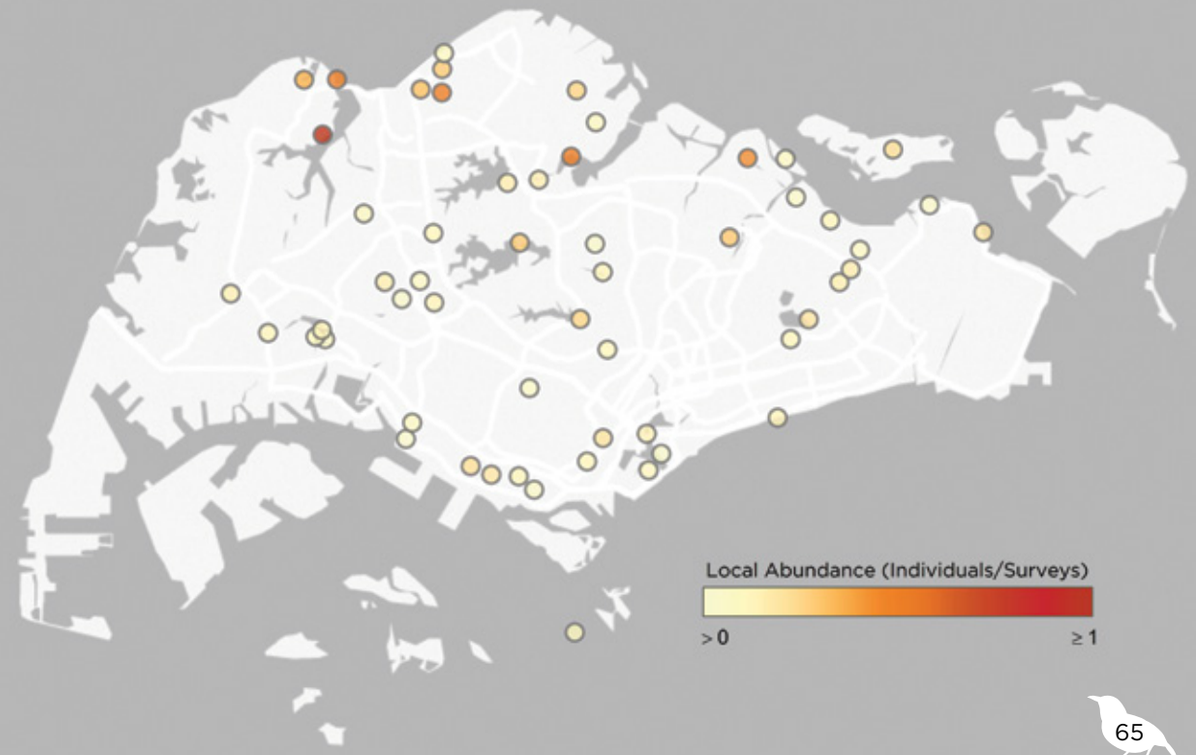
One of the few primarily arboreal species in our urban parks, the high counts during April surveys are due to established pairs being very vocal and conspicuous within their breeding territories. During the non-breeding season, its small size and lack of vocalisations make it easy to overlook.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Tiger Shrike
*Lanius tigrinus*

*Photo credit: James Chua*

## Characteristics and Global Range

A common passage migrant. Adult birds are infrequently encountered but are distinctive with a broad black face mask, grey crown and mantle, chestnut-brown upperparts that are heavily barred, and clean white underparts with a yellowish tinge. Immature birds are more commonly seen than adults, and are uniformly brown above with black barrings, and black scaling on white underparts. They also lack the face mask of adult birds. This species breeds in eastern Russia and East Asia and winters in Southeast Asia.

## Distribution, Abundance and Habitat

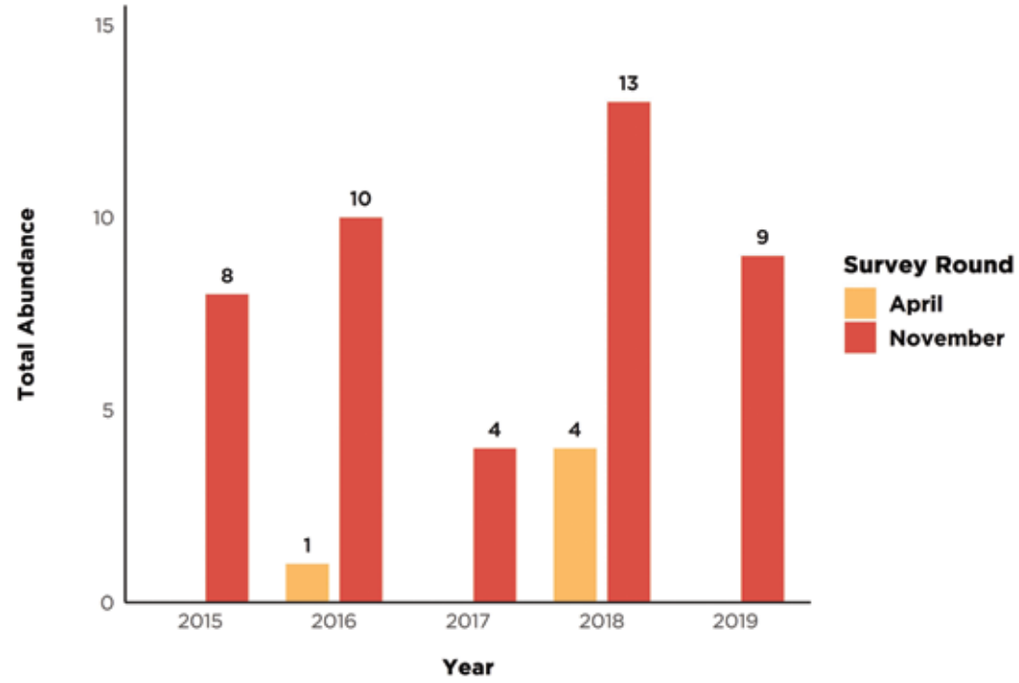
This species was recorded at 23 sites, mostly in heavily wooded parks like Mount Faber and Coney Island Park. Unlike the Brown Shrike, it favours heavily wooded areas where its harsh chattering call often gives its presence away.

## Preliminary Trends and Conservation

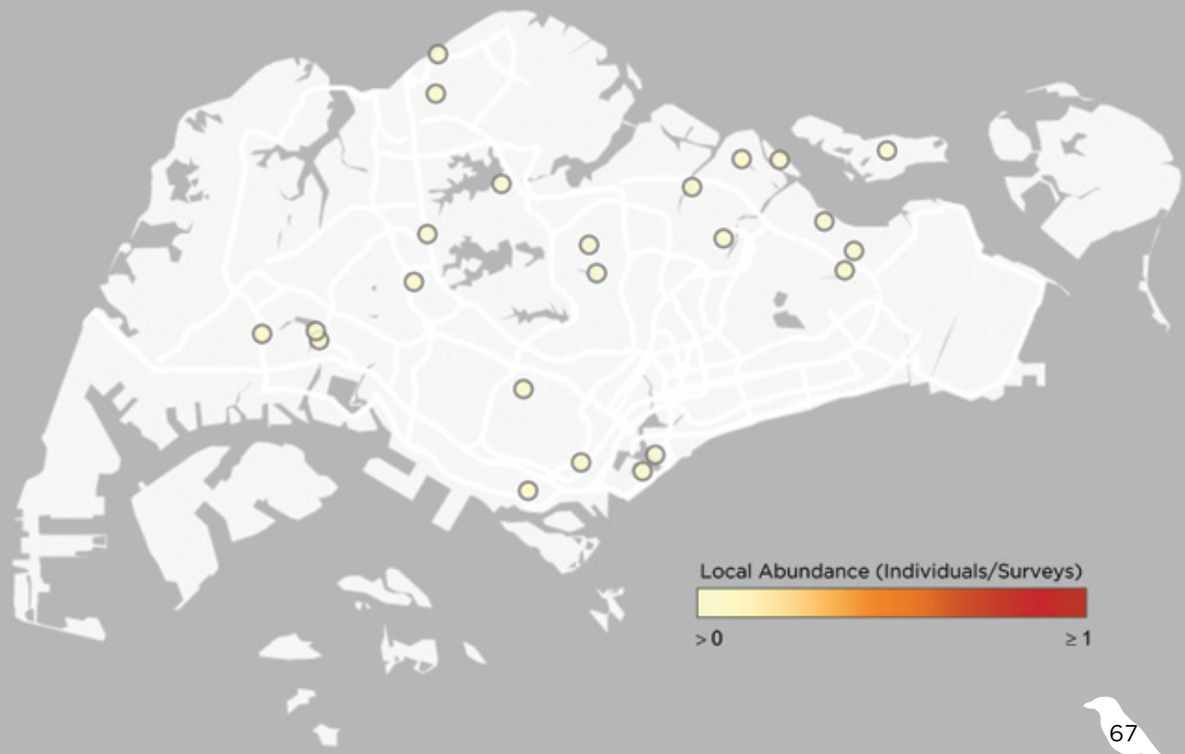
The vast majority of these birds pass through Singapore as passage migrants enroute to Indonesia with the peak migration period occurring between mid-October and early November. This pattern is reflected in the results with very few records in April.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Brown Shrike

*Lanius cristatus*

*Photo credit: Ang Wee Boon*

## Characteristics and Global Range

A common migratory bird often seen perching upright on elevated perches in open areas. It has a prominent black mask around the eye with unmarked greyish-brown upperparts, and either a grey or brown crown with a white throat and buffy underparts. This species breeds across much of Russia and northeast China and winters in Southeast Asia.

## Distribution, Abundance and Habitat

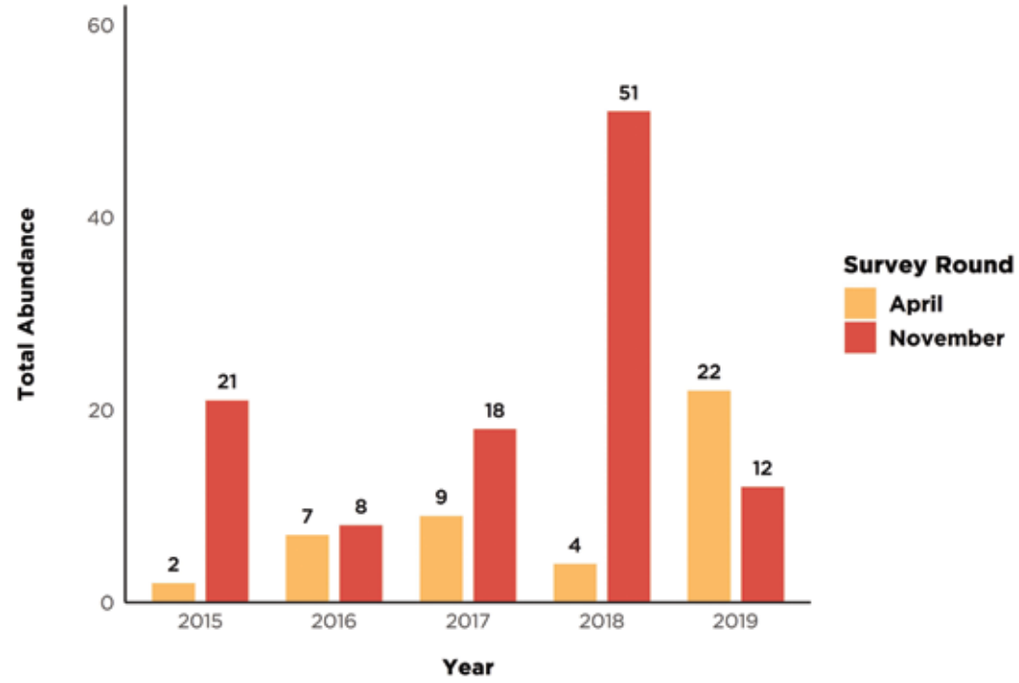
This commonly encountered bird was recorded at 36 sites, mostly in sites with areas of grassland or large lawns such as Kranji Marshes and Gardens by the Bay East. It favours open areas with scattered trees or shrubs, on which it perches when scanning for prey.

## Preliminary Trends and Conservation

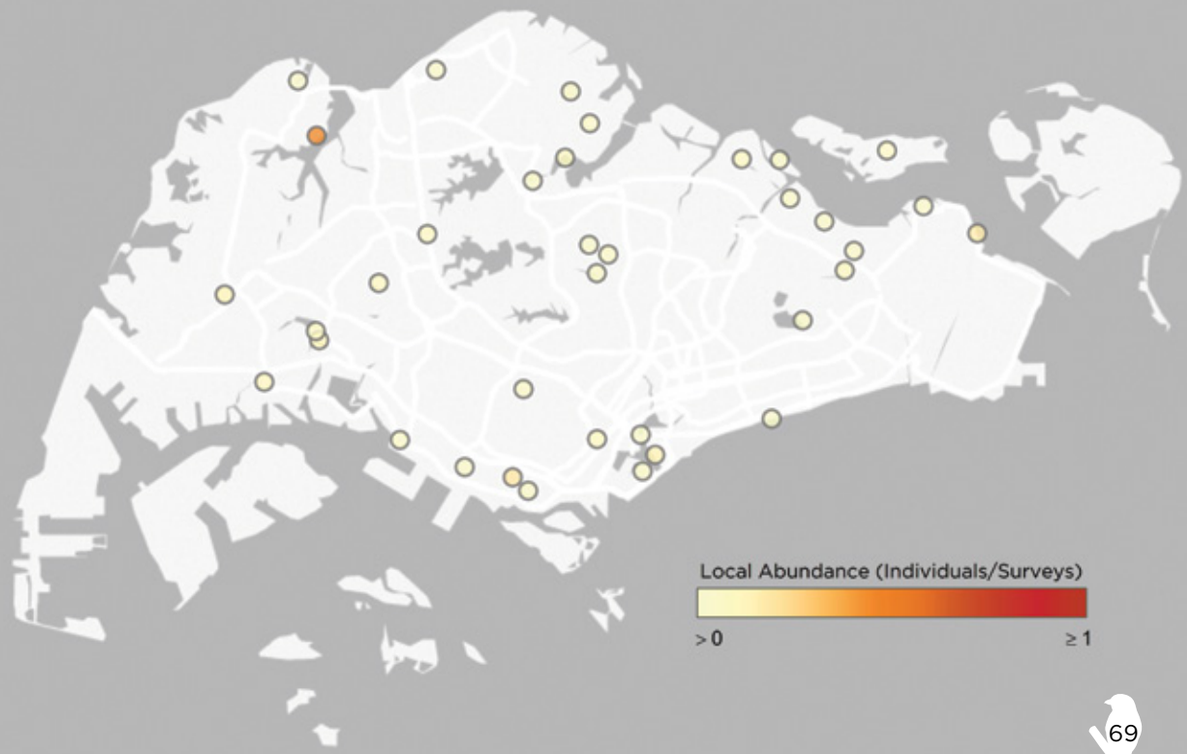
As with the other featured migratory landbirds, the peak passage period for this species seems to be between late October and early November. Birds detected during the April surveys likely comprise individuals that have spent the winter in Singapore.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Black-naped Oriole

*Oriolus chinensis*

*Photo credit: Lee Hin Jin*

## Characteristics and Global Range

An unmistakable garden bird and the only member of its family found in Singapore. Both sexes have uniformly bright yellow plumage (duller in females) with a pink bill and broad black band extending from the lores to the nape. Juveniles lack the pink bill and are streaked black on the underparts.

## Distribution, Abundance and Habitat

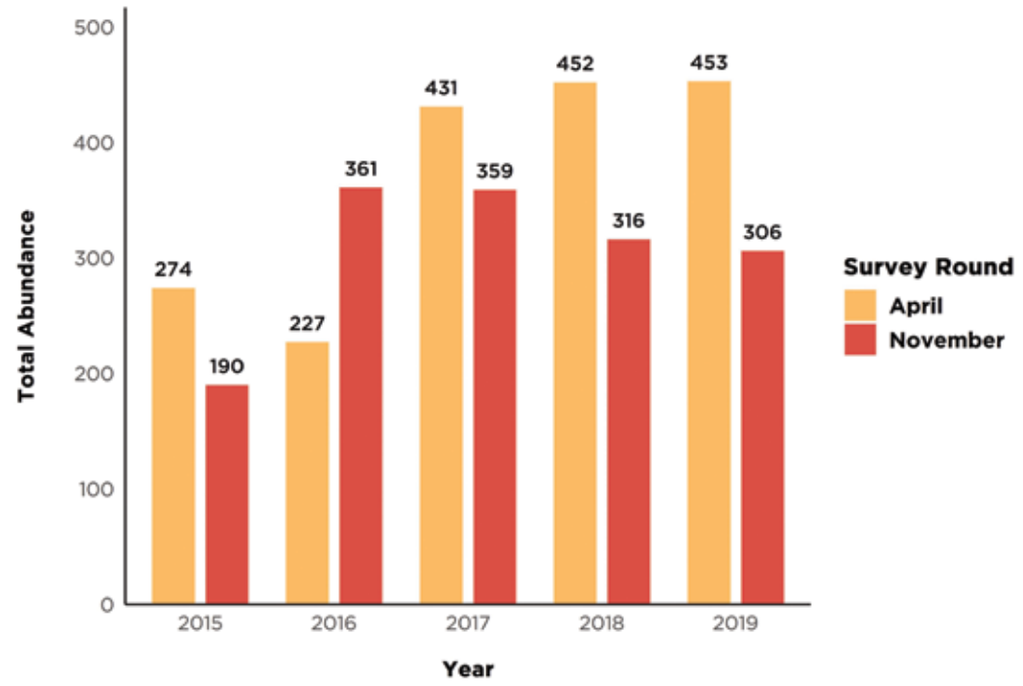
One of the most abundant garden birds in Singapore, it was recorded at all the sites surveyed in a wide variety of habitats. This species is consistently one of the top 10 most recorded species during the surveys.

## Preliminary Trends and Conservation

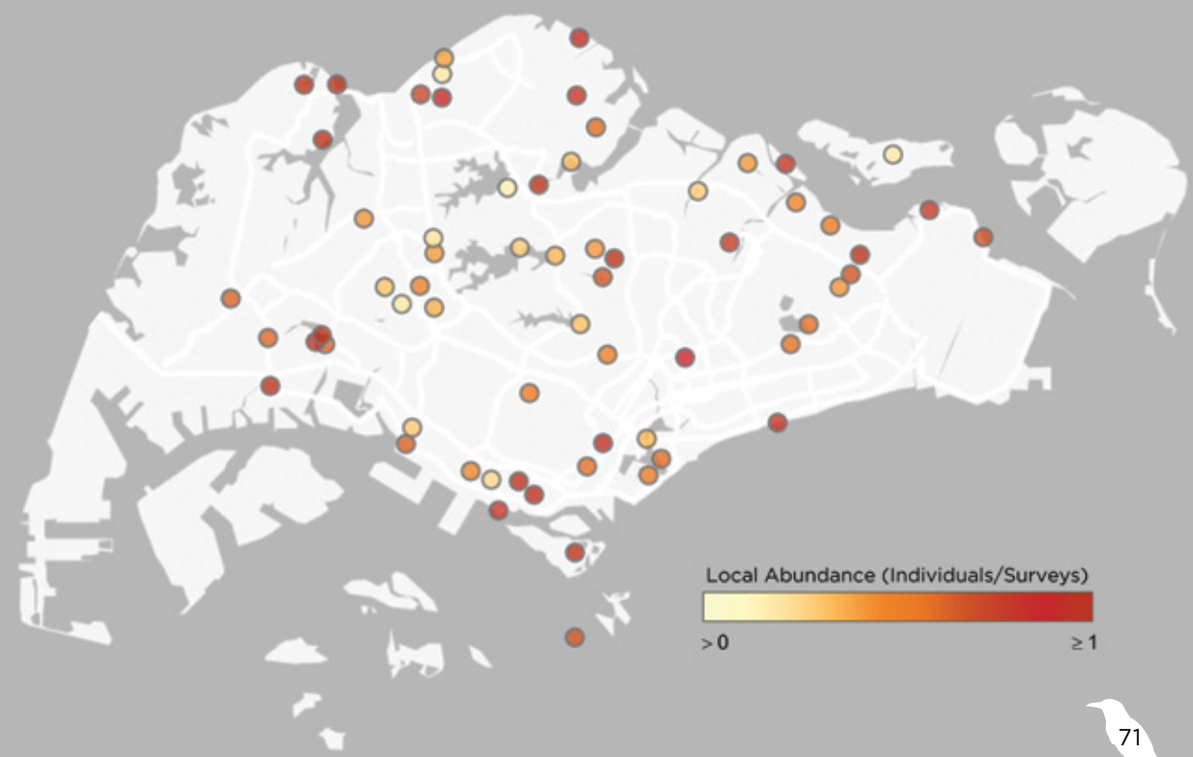
This species first established itself in Singapore in the 1920s via natural colonisation from Indonesia (Lim, 2009) and within 30 years had become one of the most common and conspicuous garden birds in Singapore (Gibson-Hill, 1952). The results of our surveys continue to corroborate this assessment/ finding.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Greater Racket-tailed Drongo

*Dicrurus paradiseus*

*Photo credit: Tan Hong Ern Benjamin*

## Characteristics and Global Range

One of the most distinctive forest birds in Singapore, thanks in part to its distinctive modified tail feathers. Juveniles and individuals in moult may lack these rackets. In such cases, their uniformly glossy blue plumage, red eyes and prominent tuft of feathers at the base of the bill are also diagnostic. It occurs across the Indian subcontinent and much of Southeast Asia.

## Distribution, Abundance and Habitat

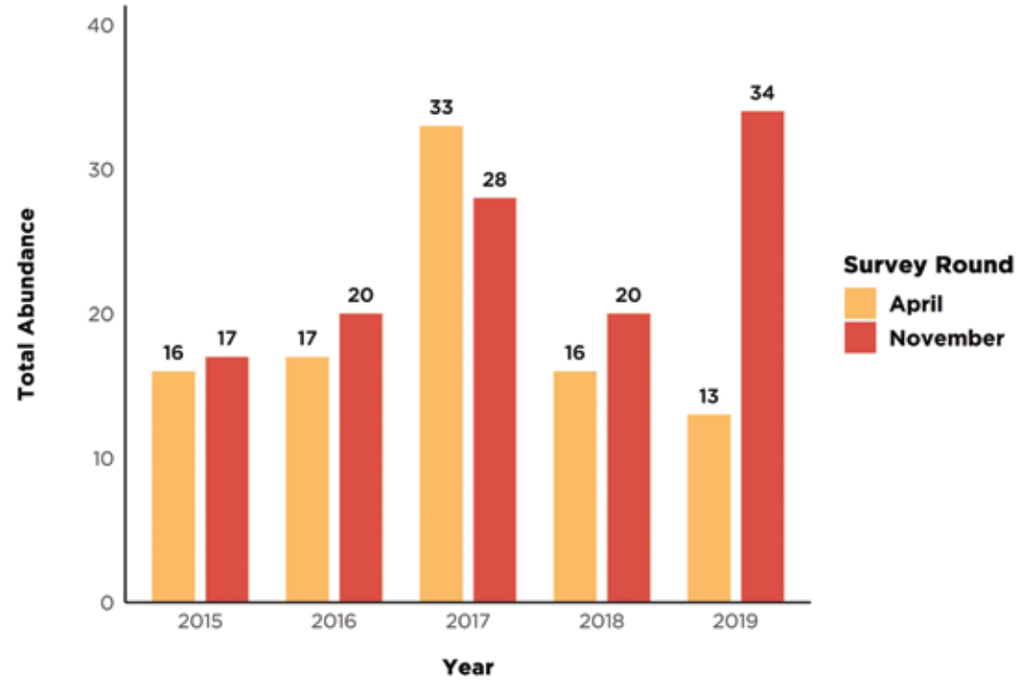
Traditionally associated with secondary forests, this species is doing well in Singapore and was recorded at 21 sites. Formerly restricted mostly to the nature reserves, it has benefitted from reforestation efforts in various parks and is now present in the Southern Ridges as well as sites in northern and western Singapore like Marsiling Park and Jurong Eco-Garden.

## Preliminary Trends and Conservation

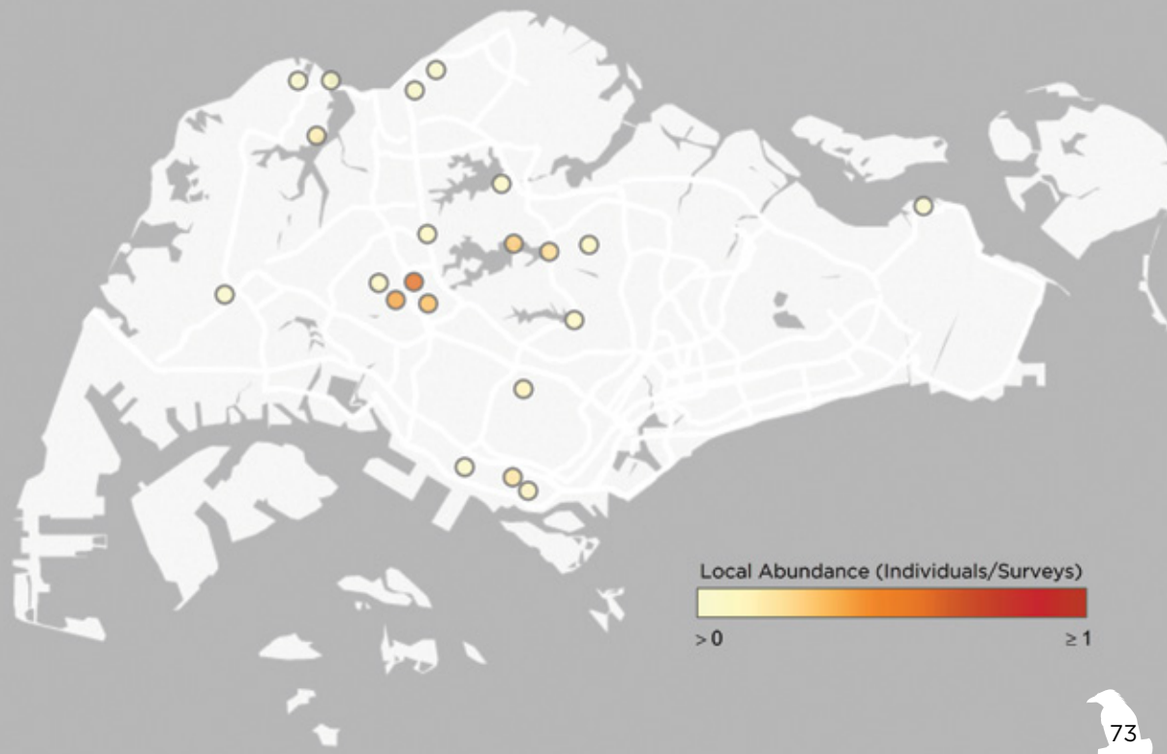
This bird seems to be benefitting from the creation of wooded habitats in our parks as both its local distribution and population are gradually increasing.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Malaysian Pied Fantail

*Rhipidura javanica*

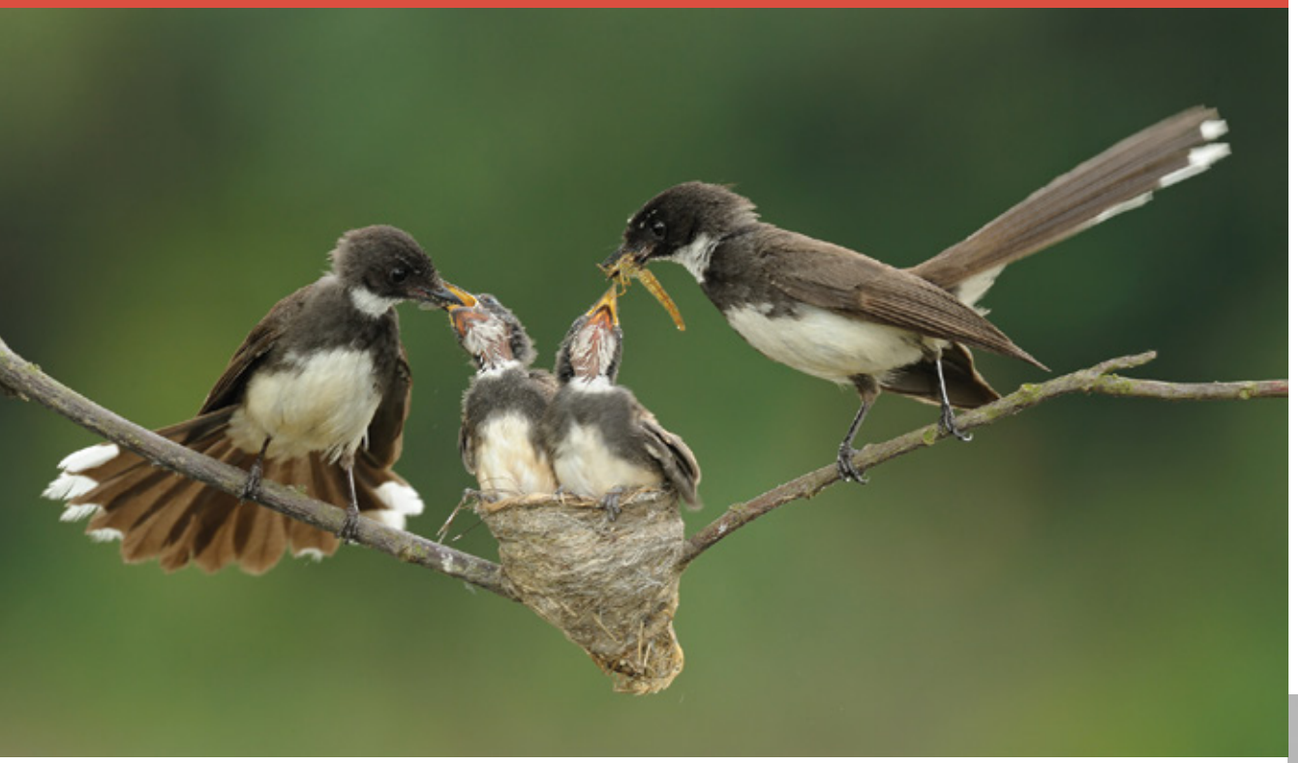


*Photo credit: Con Foley*

## Characteristics and Global Range

The only fantail in Singapore. Black upperparts contrast with a white throat and belly separated by a black breast band. Its fan-shaped tail is black with white tips. This species regularly fans its tail while moving, hence the name. It is widely distributed across the coastal regions of mainland Southeast Asia and the islands of Sumatra, Java and Borneo.

## Distribution, Abundance and Habitat

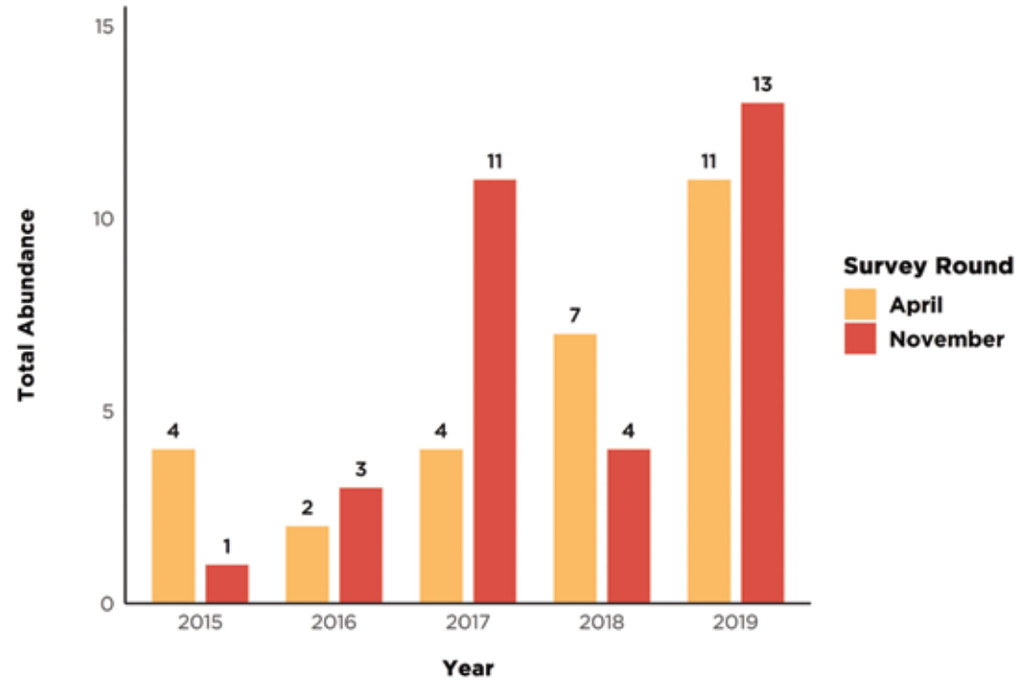
Like the Ashy Tailorbird (page 92), this is a bird of mangrove forests, coastal scrub and riparian habitats. It often forages in the company of the aforementioned species and there is much overlap in the sites where both species were recorded during the surveys.

## Preliminary Trends and Conservation

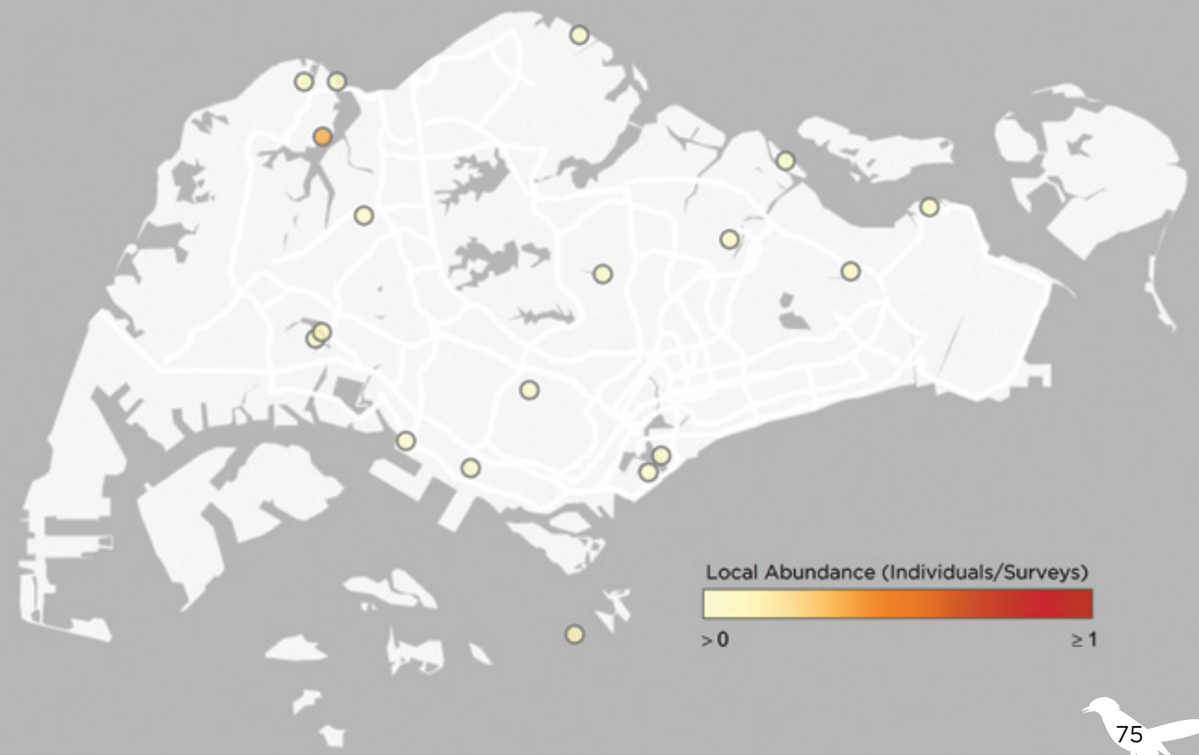
The creation of additional urban wetlands and associated riparian habitats in newer park developments has likely been beneficial to this species, as there is an upward trend in the number of individuals recorded over the survey period.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Asian Paradise Flycatcher

*Terpsiphone* sp.

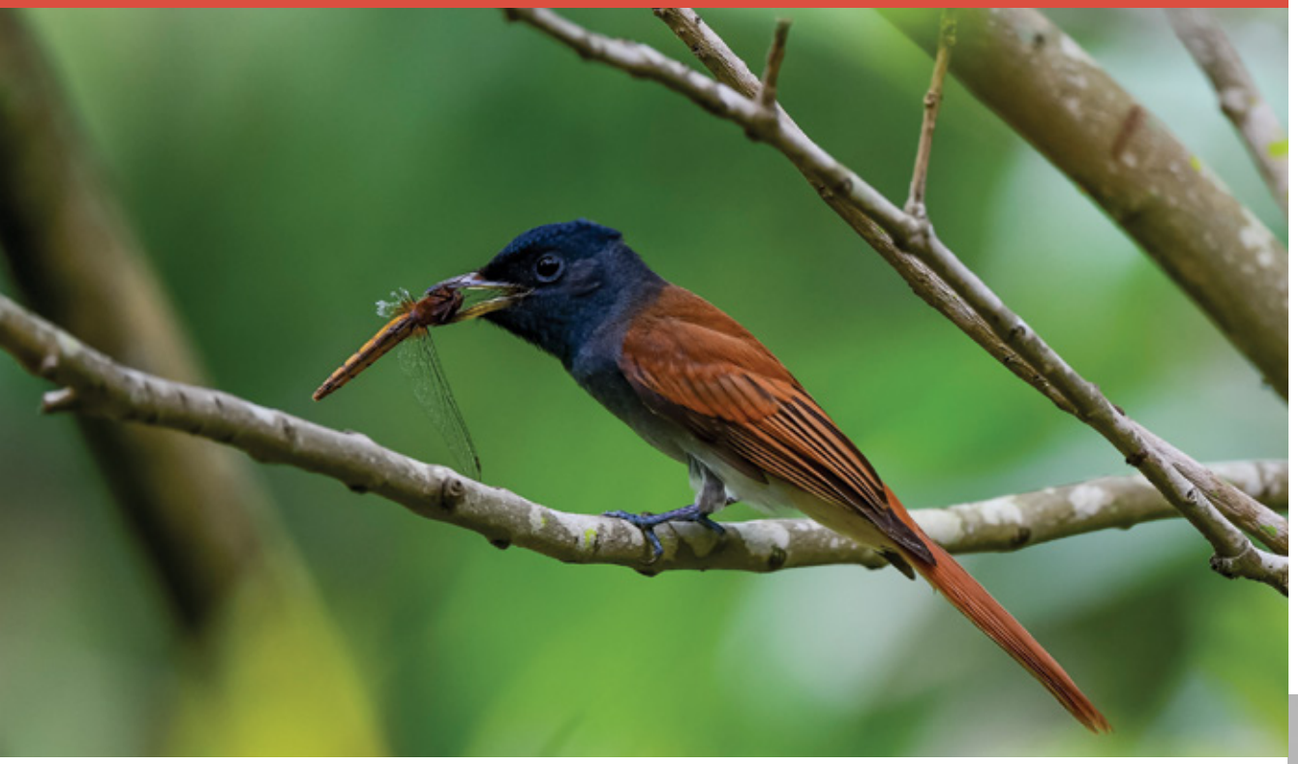


*Photo credit: Francis Chia*

## Characteristics and Global Range

In Singapore, this species* occurs primarily as a passage migrant during the northern winter. In non-breeding plumage, both sexes have a glossy black head with chestnut-brown wings and back. Underparts are usually greyish on the upper breast with a whitish belly. A rare white morph also occurs with a glossy black head and uniformly white plumage. In breeding plumage, males have very long tail streamers. Collectively, the three species span a range that covers the Indian subcontinent, eastern Russia and East Asia as well as Southeast Asia.

## Distribution, Abundance and Habitat

This flycatcher was recorded in small numbers at 16 sites, mostly in well-wooded parks like Coney Island Park and Hindhede Nature Park. This species is known to regularly join mixed feeding flocks with other forest birds such as the Pin-striped Tit-Babbler (page 94) and Dark-necked Tailorbird (*Orthotomus atrogularis*).

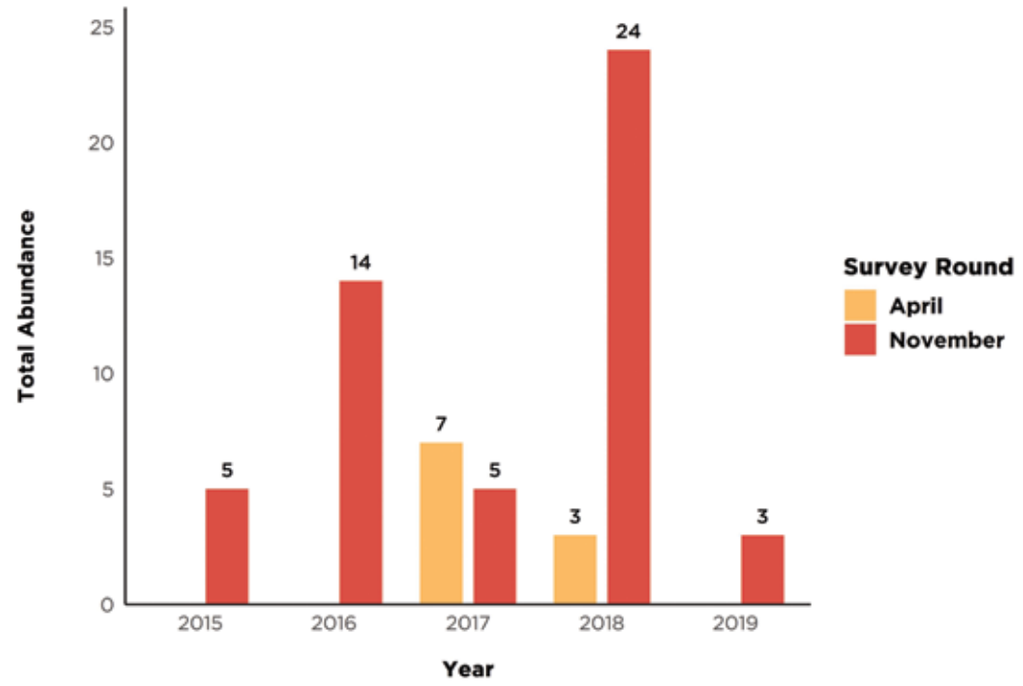
## Preliminary Trends and Conservation

Passage numbers for this flycatcher in Singapore are generally at their highest in mid-October, with comparatively fewer individuals recorded in November. Interestingly, numbers recorded varied noticeably between each survey round.

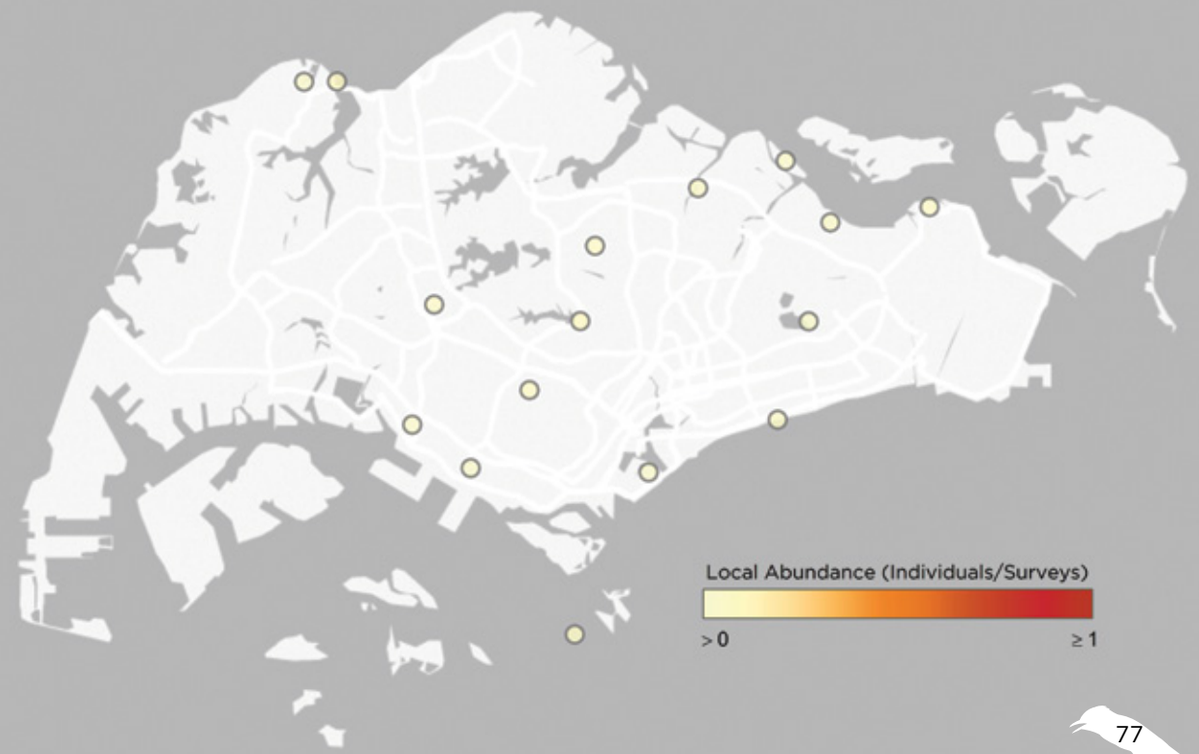
*Recent genetic studies have resulted in the splitting of this species into three: the Amur Paradise Flycatcher (*Terpsiphone incei*), Blyth's Paradise Flycatcher (*Terpsiphone affinis*) and the Indian Paradise Flycatcher (*Terpsiphone paradisi*). All three species are known to occur in Singapore. However, as many of the records made during the Garden Bird Watch period pre-date this taxonomic change, all the species are treated here under the name of Asian Paradise Flycatcher.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# House Crow

*Corvus splendens*

*Photo credit: Dillen Ng*

## Characteristics and Global Range

An infamous human commensal first introduced to Singapore via trading ships from the Indian subcontinent. A large bird with a black face and wings that contrast with a grey mantle, neck and breast. This species is native to the Indian subcontinent and Myanmar but introduced populations are present all over the world.

## Distribution, Abundance and Habitat

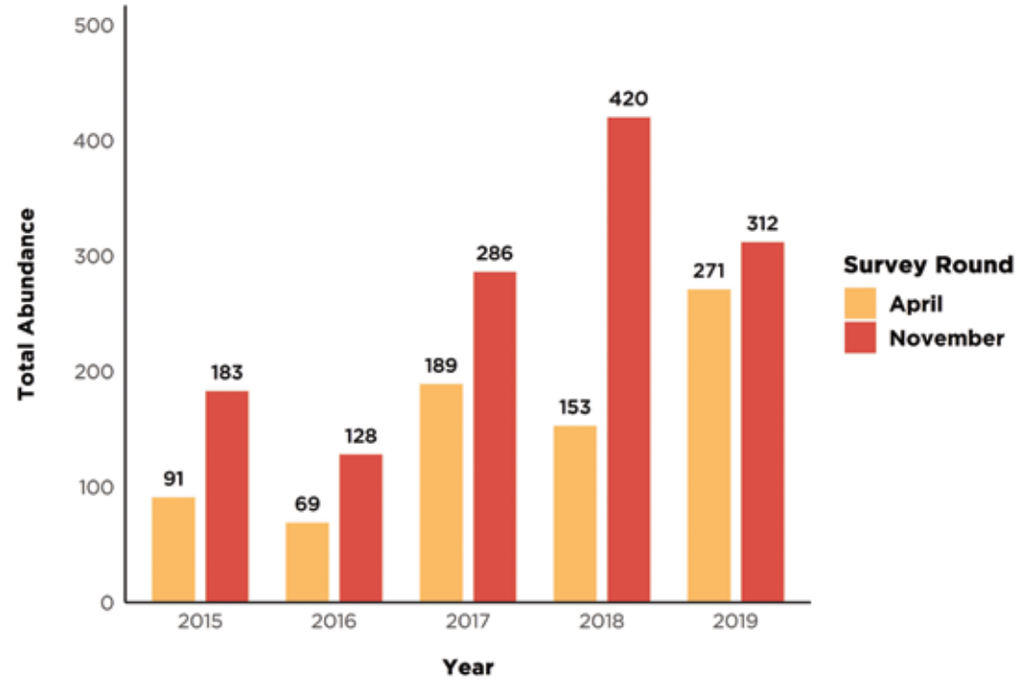
The House Crow is widespread throughout Singapore and was recorded at 60 sites. Coastal areas appear to host the largest populations with high counts noted at sites like East Coast Park, Pasir Ris Park and Sungei Buloh Wetland Reserve.

## Preliminary Trends and Conservation

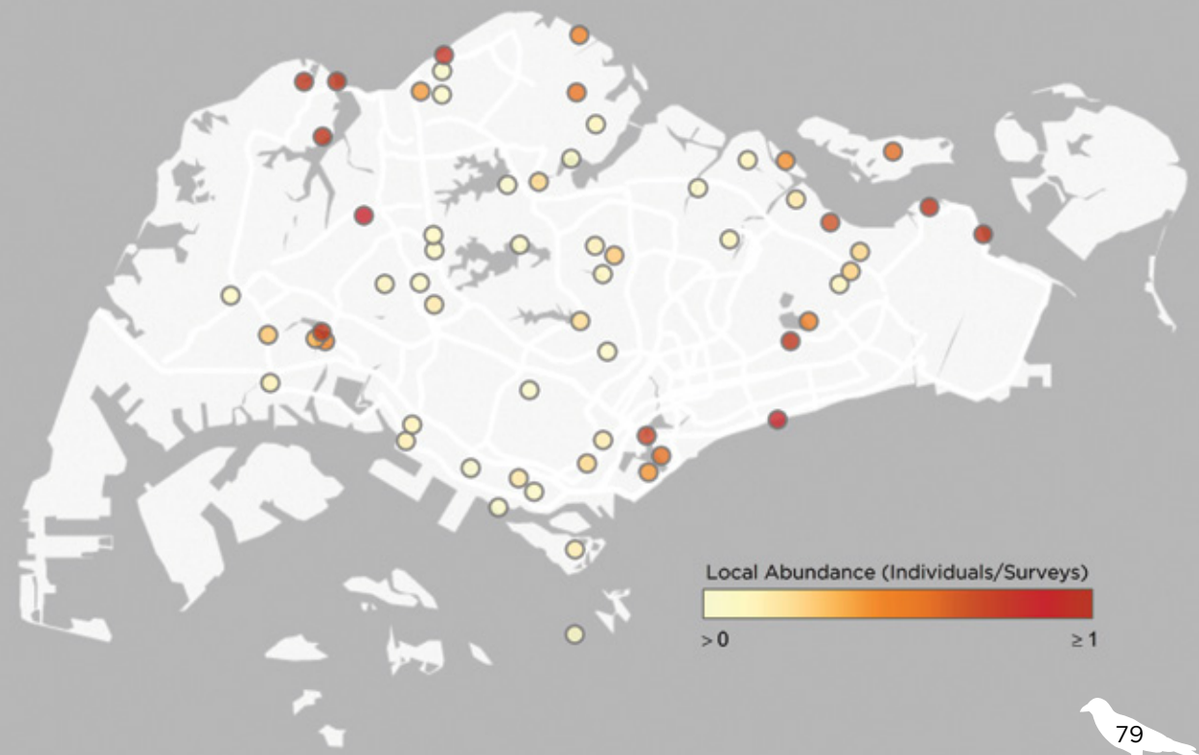
The crow population appears to be gradually increasing. High counts during the November surveys might be suggestive of local flocks being augmented by dispersants from surrounding regions such as Johor and the Riau Islands.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Large-billed Crow

*Corvus macrorhynchos*

*Photo credit: Dillen Ng*

## Characteristics and Global Range

An imposing, jet-black crow with a massive bill. Noticeably larger than the House Crow (page 78) with uniformly jet-black plumage. Best distinguished from the former by a steep forehead and much thicker bill. This species has a wide distribution from India and eastern Russia and Japan through to the islands of Sumatra and Java.

## Distribution, Abundance and Habitat

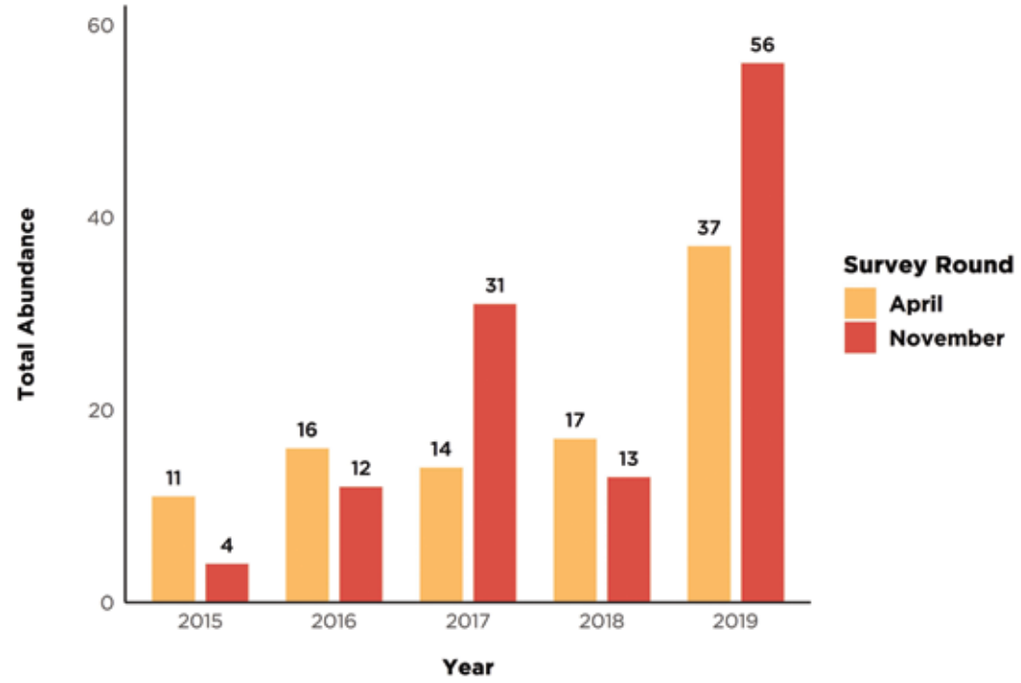
Unlike the House Crow, this species is not a human commensal and largely occurs only in wooded areas, where it is usually seen in pairs. It was recorded at 34 sites, mostly in well-wooded parks like Kranji Marshes, Kent Ridge Park and Springleaf Nature Park.

## Preliminary Trends and Conservation

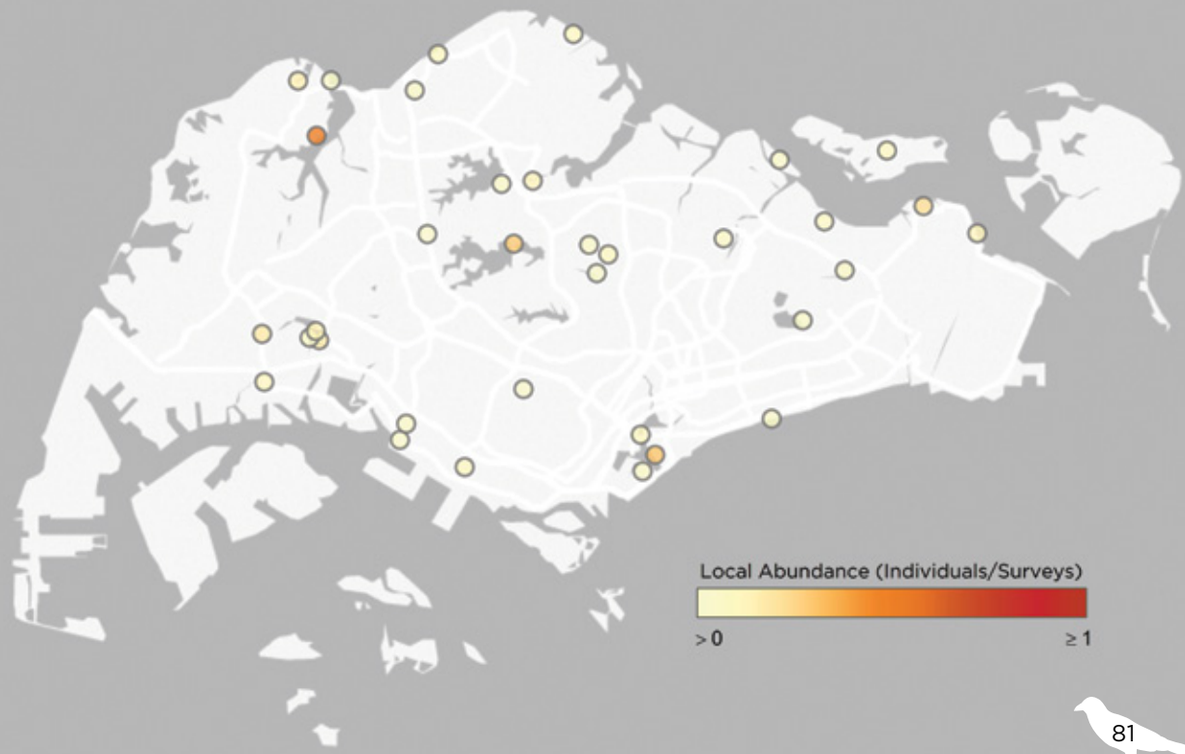
The local population has supposedly declined owing to competition with the introduced House Crow (Lim, 2009). However, preliminary results suggest that it is slowly increasing in recent years, albeit at a much slower rate compared to its urban-adapted counterpart.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Straw-headed Bulbul

*Pycnonotus zeylanicus*

*Photo credit: Ang Wee Boon*

## Characteristics and Global Range

The largest bulbul in Southeast Asia. It has a distinctive golden crown and cheeks along with a black eye stripe and moustache. Its nape, back and breast are brownish with white streaks. Its wings and tail are olive-green, and its throat is white. Formerly widespread across the Thai-Malay Peninsula and the islands of Borneo, Sumatra and Java, it is now restricted to small scattered populations on West Malaysia and Borneo as well as Singapore.

## Distribution, Abundance and Habitat

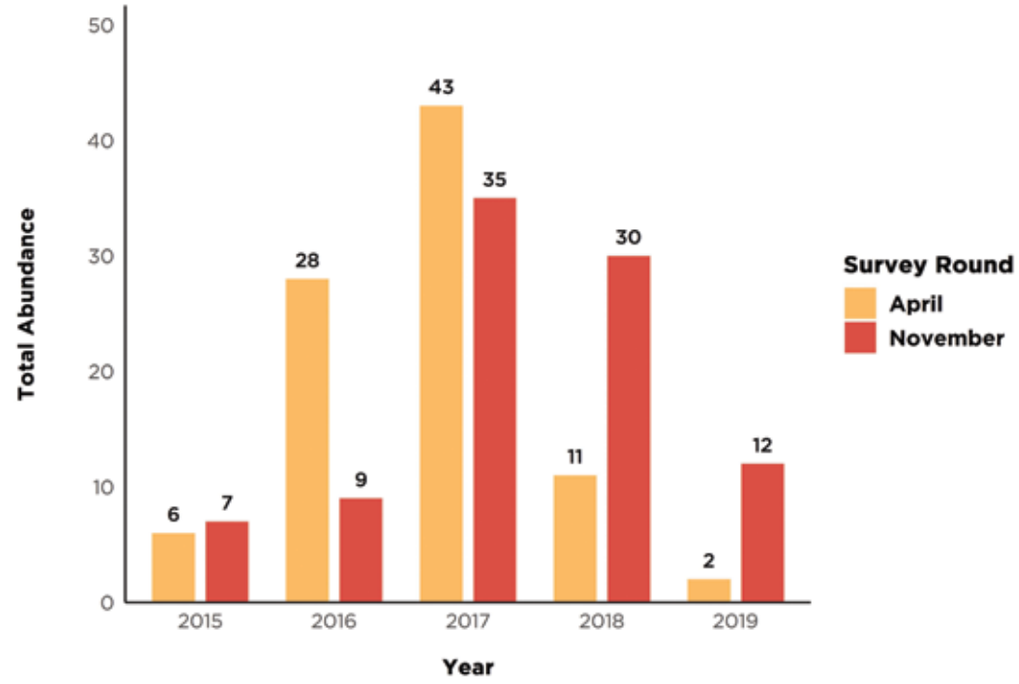
Singapore is now a global stronghold for this species, where the local population appears to be increasing, particularly on the island of Pulau Ubin. This species prefers wooded habitats near large water bodies and this preference is reflected in its distribution, as it was regularly recorded during the surveys from sites around nature parks that contain abandoned quarries.

## Preliminary Trends and Conservation

This species was recently uplisted to globally Critically Endangered by IUCN in view of ongoing extensive trapping throughout its range for the songbird trade. In Singapore, the species remains widespread and its melodious song can still be readily heard throughout the country in suitable habitats.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site

Abundance at each survey site has been intentionally left out to protect this Critically Endangered species.

# Yellow-vented Bulbul

*Pycnonotus goiavier*

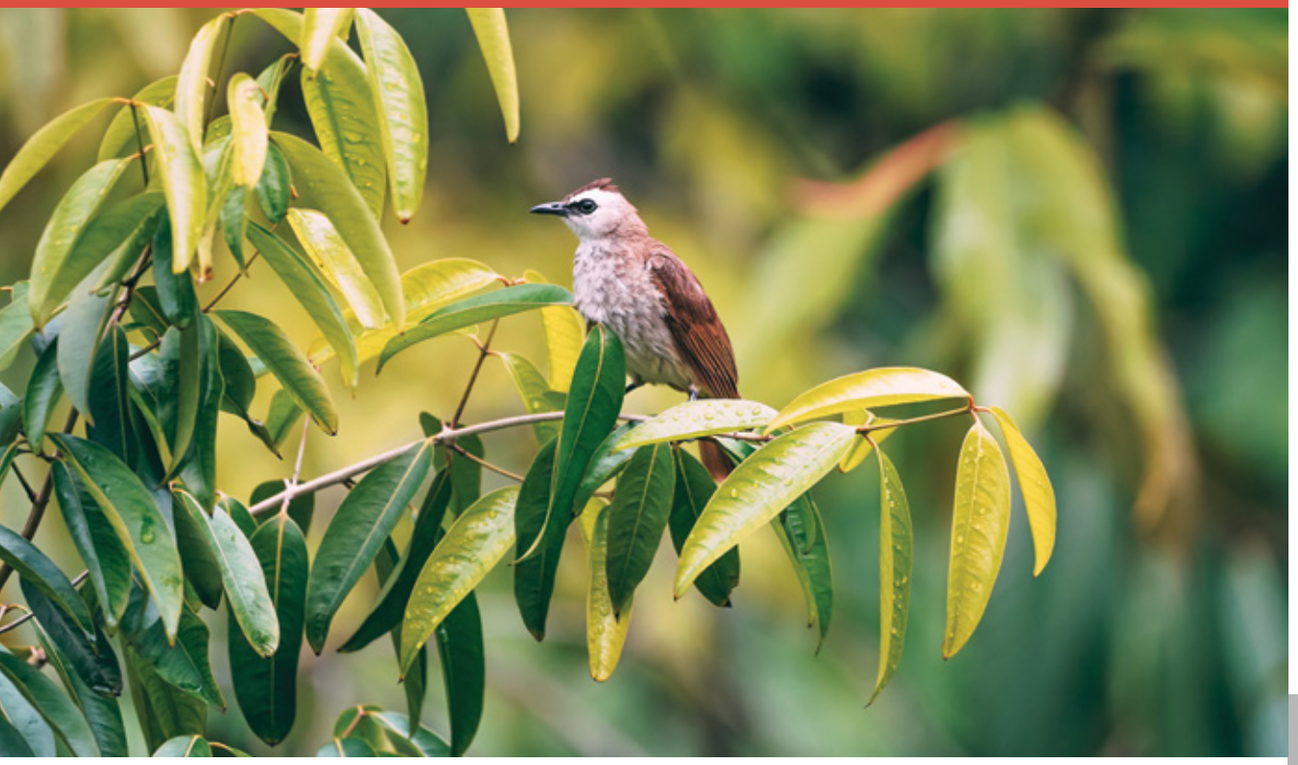


*Photo credit: Tan Hong Ern Benjamin*

## Characteristics and Global Range

A ubiquitous garden bird. Its bright yellow vent is not always visible, but the combination of a white head and black lores is distinctive. Upperparts are light brown, with whitish underparts streaked brown. Sexes are similar in appearance. This species is widely distributed across Southeast Asia including the islands of Borneo, the Philippines and Indonesia.

## Distribution, Abundance and Habitat

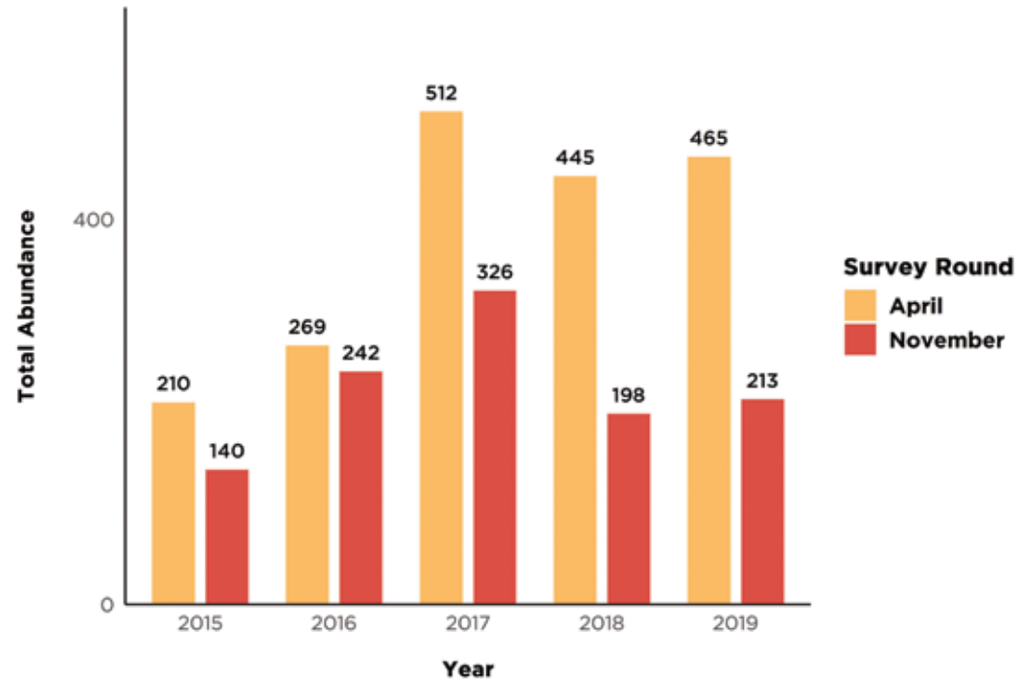
This abundant species was recorded at all survey sites. A generalist that has adapted well to a wide variety of habitats, it was recorded across a wide range of habitats from nature parks to parks located within the Central Business District such as Fort Canning Park.

## Preliminary Trends and Conservation

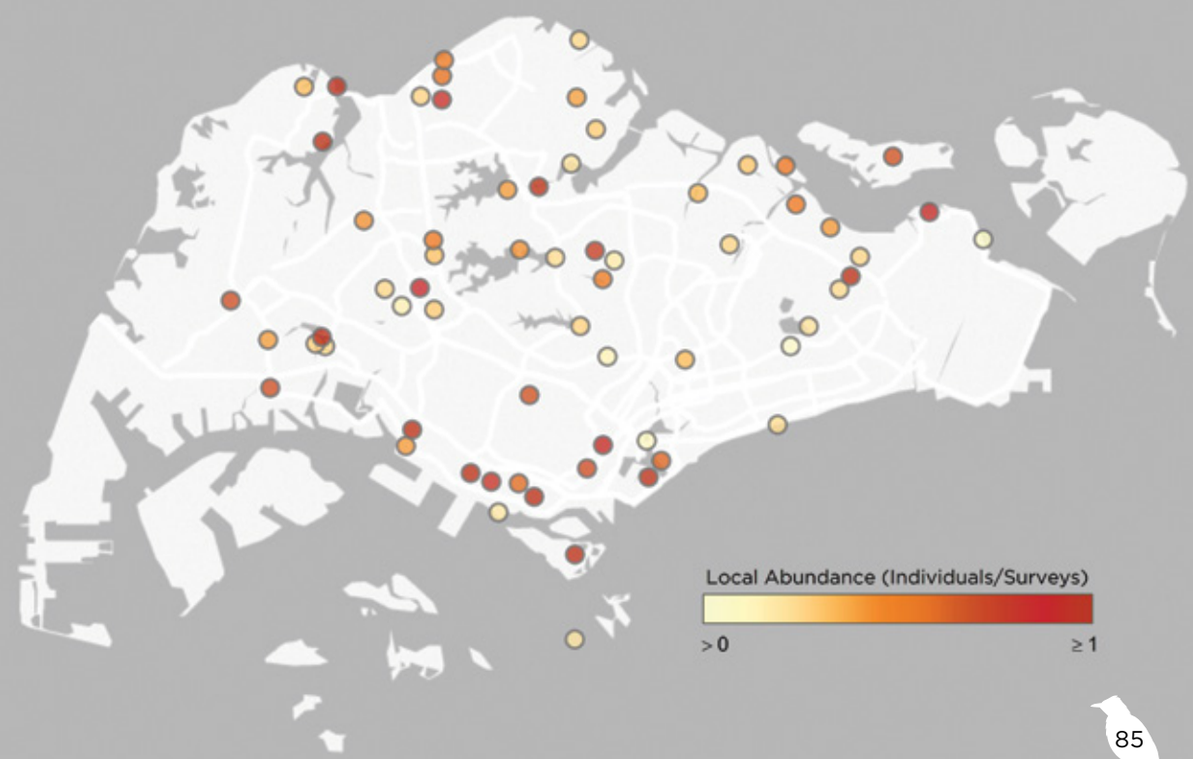
This species is one of Singapore's most abundant birds. Its breeding season lasts from February to August, during which pairs may breed more than once. This could explain the consistently high counts during the April surveys, when family groups comprising parents and recently fledged young are vocal and conspicuous.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Olive-winged Bulbul

*Pycnonotus plumosus*

*Photo credit: Bryan Lim*

## Characteristics and Global Range

The most regularly encountered bulbul in Singapore's forests. Its diagnostic olive-green wings can be difficult to discern. In such cases, its combination of red eyes and streaks around the cheeks are also distinctive features. Upperparts are generally dark brown, with underparts a lighter shade of brown. This species is found throughout the Thai-Malay Peninsula as well as the islands of Sumatra, Java and Borneo.

## Distribution, Abundance and Habitat

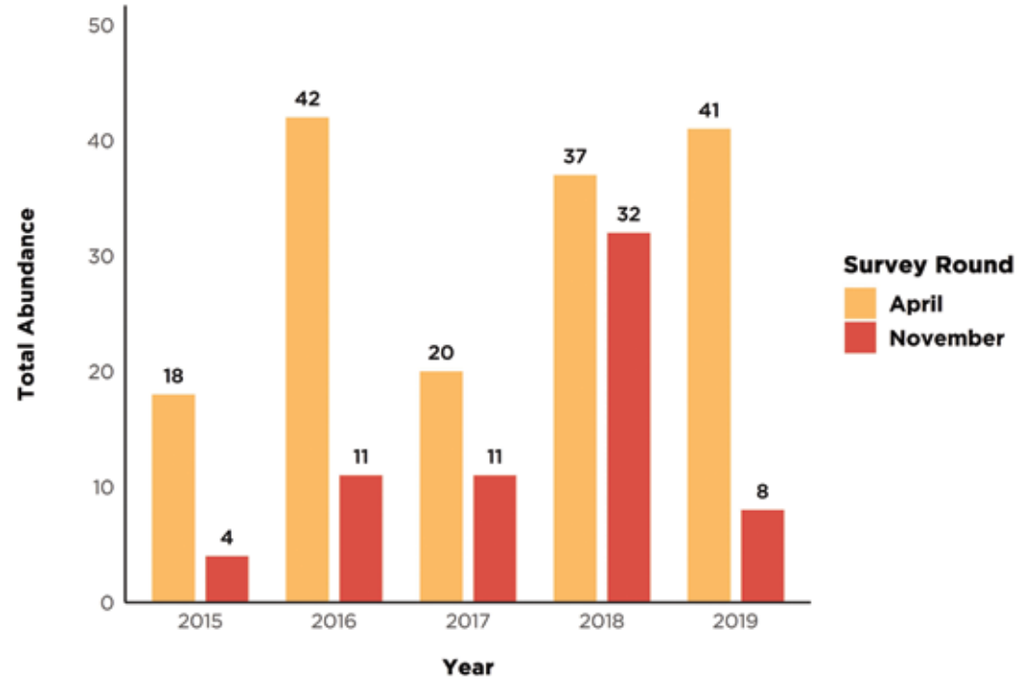
This bulbul replaces the abundant Yellow-vented Bulbul (page 84) in secondary forest and consequently has a much more localised distribution, being recorded at 23 sites. Offshore islands like Pulau Ubin and Sentosa appear to be strongholds for this species, where it occurs at higher densities than mainland sites.

## Preliminary Trends and Conservation

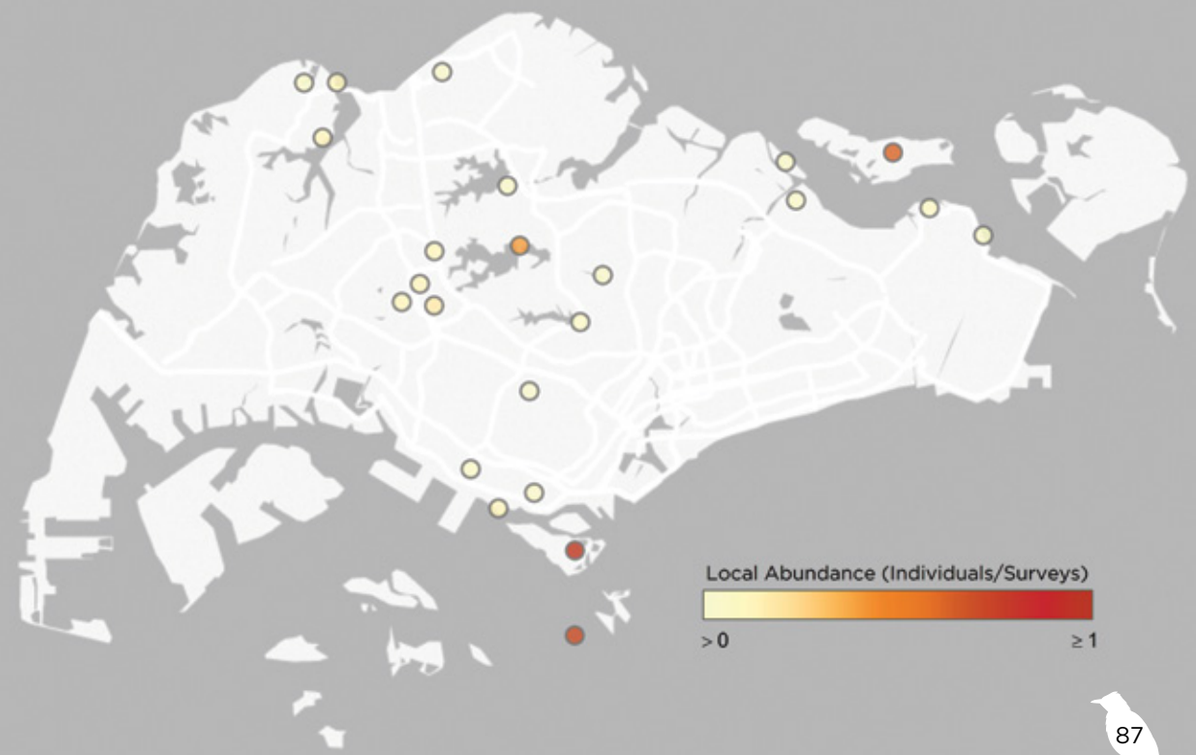
This is one of the forest-dwelling birds that volunteers were trained to look out for since 2016 and sightings appear to have increased since then. Established pairs are vocal during the breeding season, and this is reflected in the consistently higher numbers recorded during the April surveys.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Arctic Warbler

*Phylloscopus borealis*

*Photo credit: Francis Yap*

## Characteristics and Global Range

Arguably the most abundant migratory landbird found in Singapore during the northern winter. It is generally nondescript with olive-green upperparts, dirty white underparts and a long white eyebrow that extends to the nape. Some individuals may show indistinct wingbars. This species has a wide breeding range from northern Europe to eastern Russia and the vast majority of the global population winters in Southeast Asia.

## Distribution, Abundance and Habitat

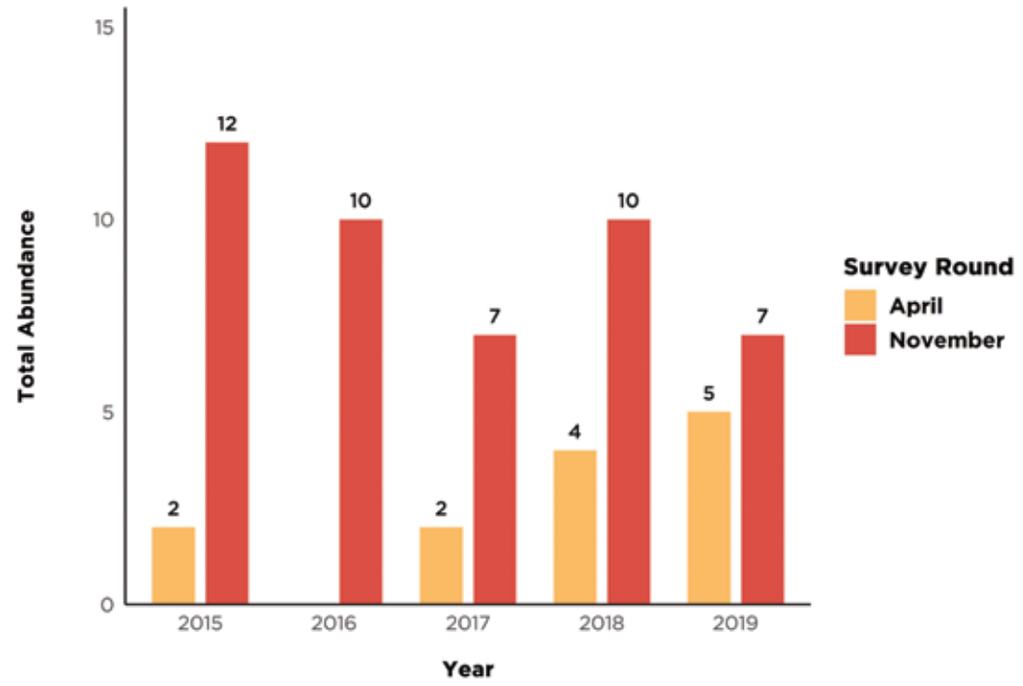
This is the most commonly encountered leaf warbler in Singapore and occurs in all habitats including urban areas during the northern winter. However, its arboreal habits, nondescript plumage and infrequent vocalisations mean that it is easily overlooked. It was recorded at 16 sites.

## Preliminary Trends and Conservation

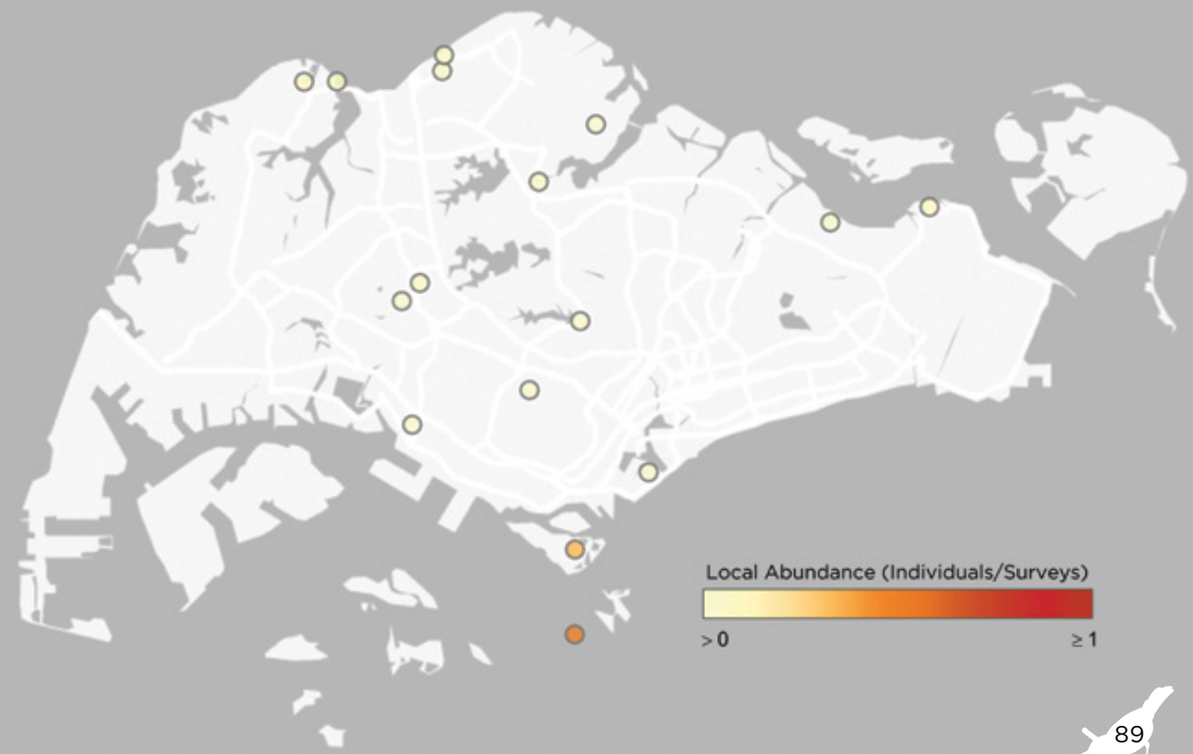
The results corroborate anecdotal observations that the peak passage period for this species is between late October and early November. Birds detected during the April surveys are likely individuals that have spent the winter in Singapore and are preparing to return to their breeding grounds.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Common Tailorbird

*Orthotomus sutorius*

*Photo credit: Ang Wee Boon*

## Characteristics and Global Range

A skulking inhabitant of the understorey that is more often heard than seen. In both sexes, it can be identified by a rufous forehead that does not extend beyond the eye and a comparatively long tail. Its upperparts are olive green with whitish and prominent black streaks around the neck, particularly in males. Males have noticeably longer tails as well. This species is found across mainland southern Asia from the Indian subcontinent to mainland Southeast Asia. An isolated population is present on the island of Java.

## Distribution, Abundance and Habitat

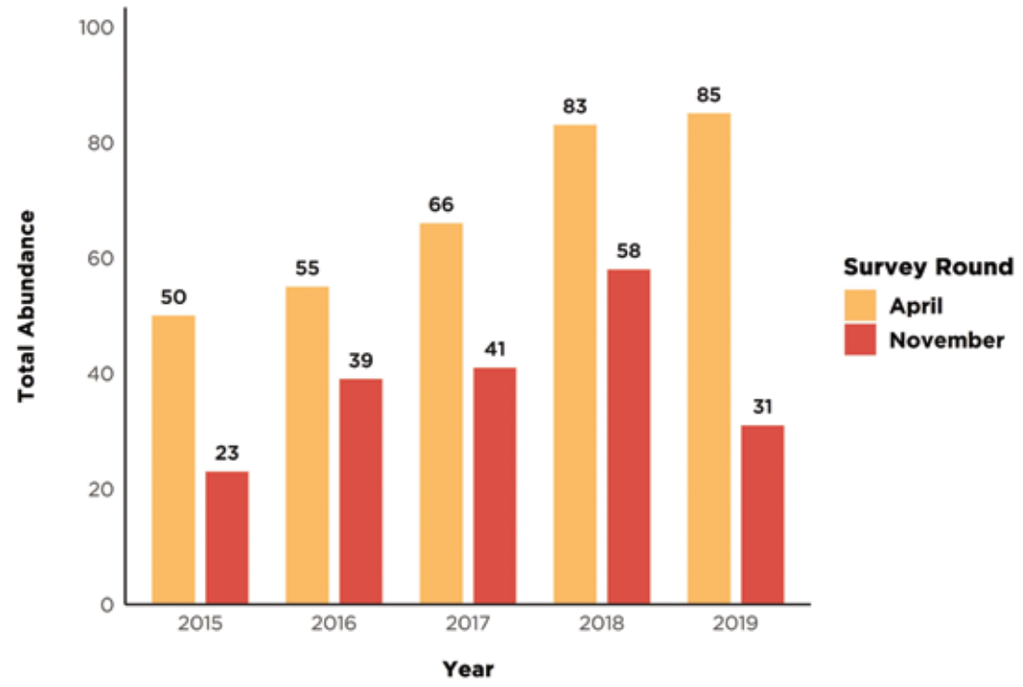
This common garden bird frequents areas of dense shrubbery in parks as well as Nature Ways and other roadside greenery.

## Preliminary Trends and Conservation

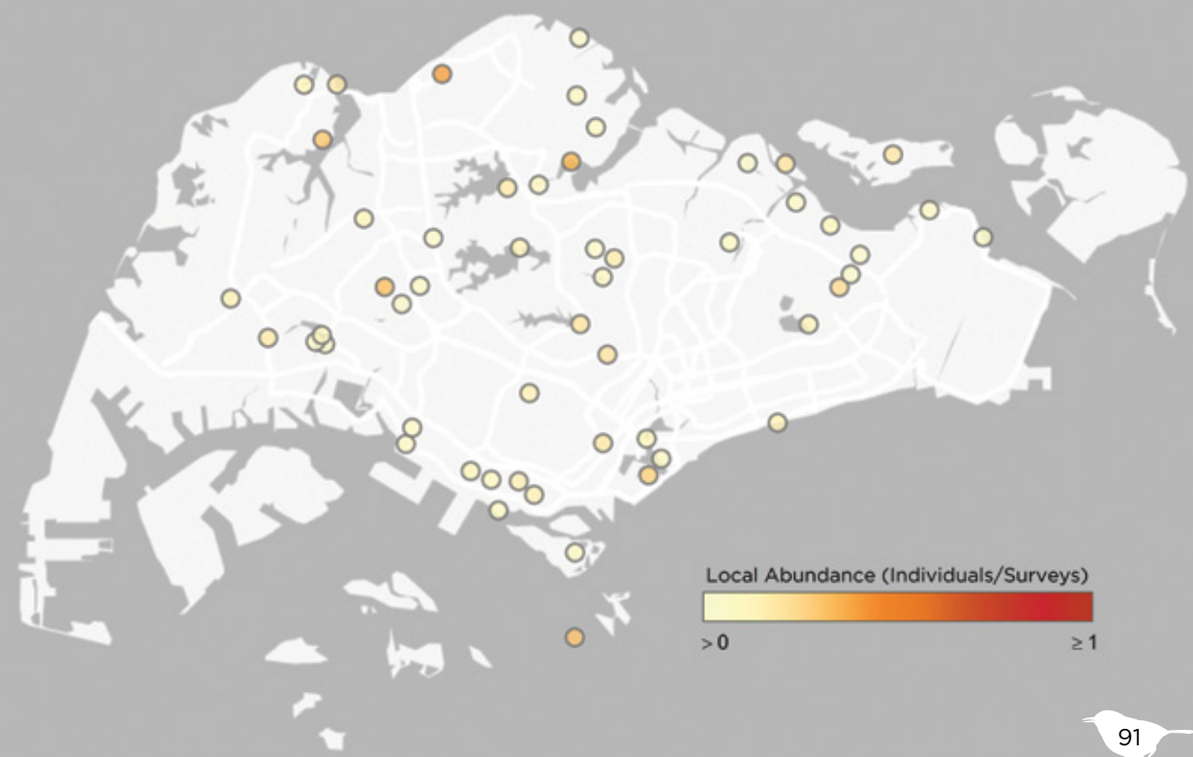
The local population of this species appears to be on the increase, possibly benefitting from habitat enhancement in many parks. It is also very vocal and conspicuous during the breeding season, which may explain the consistently higher numbers observed during the April surveys.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Ashy Tailorbird

*Orthotomus ruficeps*

*Photo credit: Teoh Wei Shan*

## Characteristics and Global Range

The most distinctive of Singapore's tailorbirds, with a rufous face contrasting sharply with ash-grey upperparts. Males have greyish underparts too, while females have a white throat and underparts with greyish flanks. This species is patchily distributed across coastal Southeast Asia, including the islands of Sumatra, Java and Borneo.

## Distribution, Abundance and Habitat

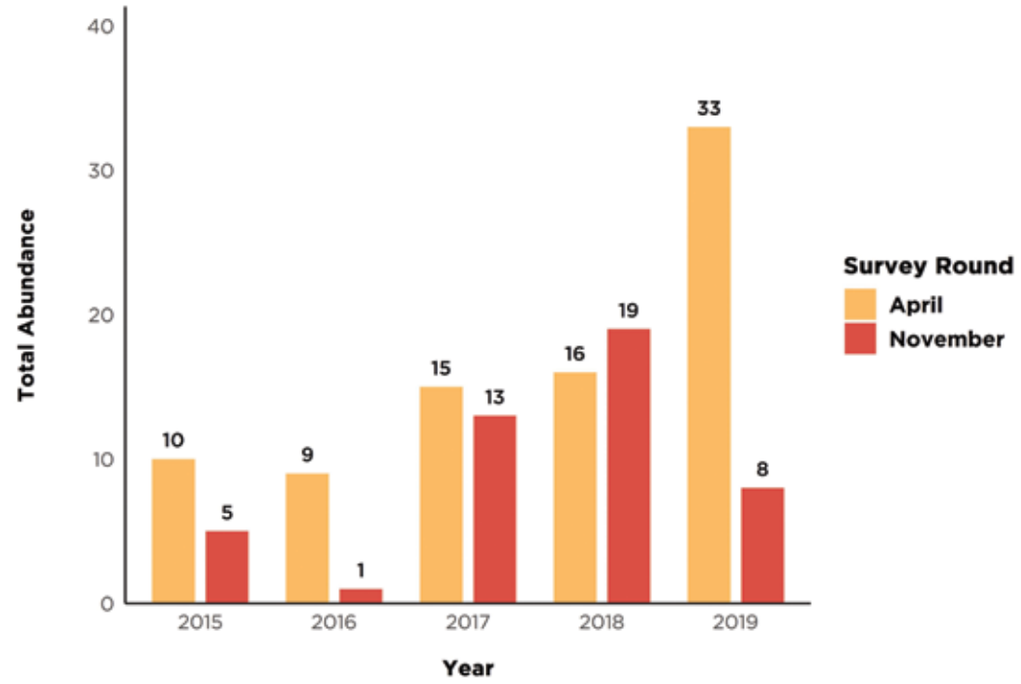
A bird of mangrove forests, coastal scrub and riparian habitats, this species was recorded at 16 sites. It is the only tailorbird found in mangroves and was most numerous at sites like Sungei Buloh Wetland Reserve. However, its presence at more inland locations like Singapore Botanic Gardens and Jurong Lake Gardens suggests that it is colonising riparian habitats in sites that feature large wetlands as well.

## Preliminary Trends and Conservation

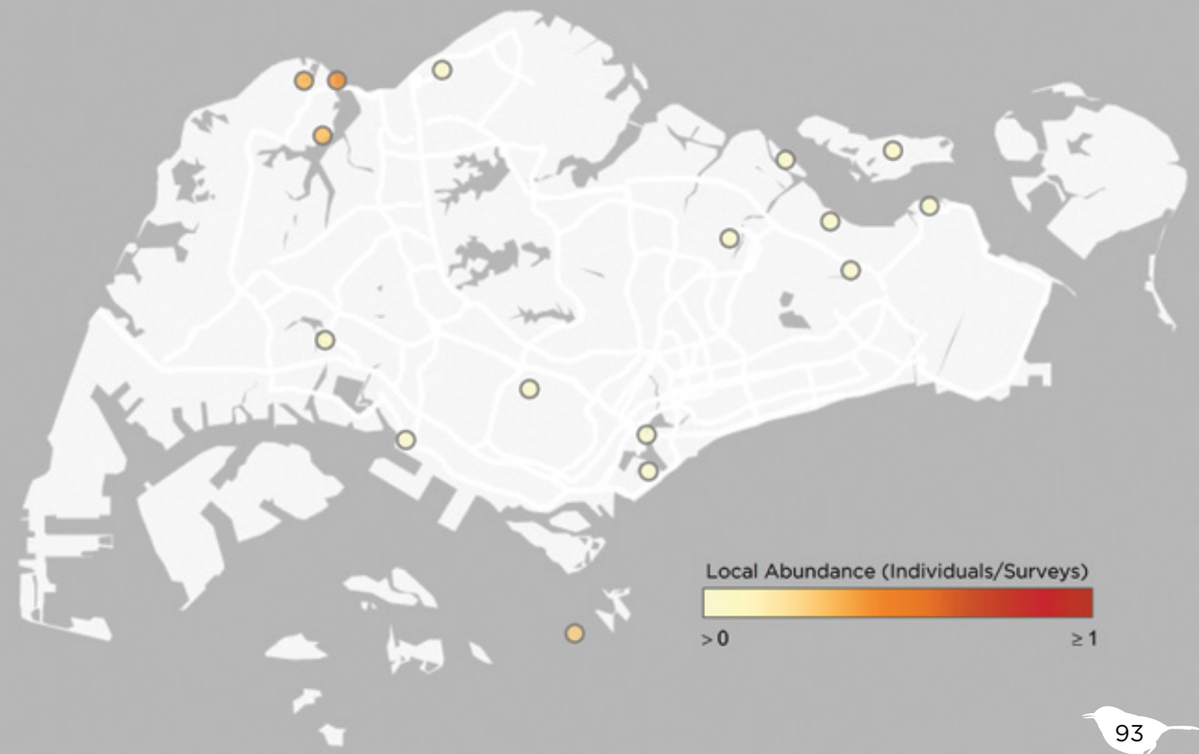
The local population appears to be increasing and is potentially benefitting from urban wetlands and associated riparian habitats in newer park developments.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Pin-striped Tit-Babbler

*Macronous gularis*

*Photo credit: Ang Wee Boon*

## Characteristics and Global Range

The most widespread babbler in Singapore. It is a distinctive bird with brown upperparts and yellow underparts, with prominent dark streaks on the throat and upper breast. It also has a rufous crown. This species occurs from eastern India across Southeast Asia to the island of Sumatra.

## Distribution, Abundance and Habitat

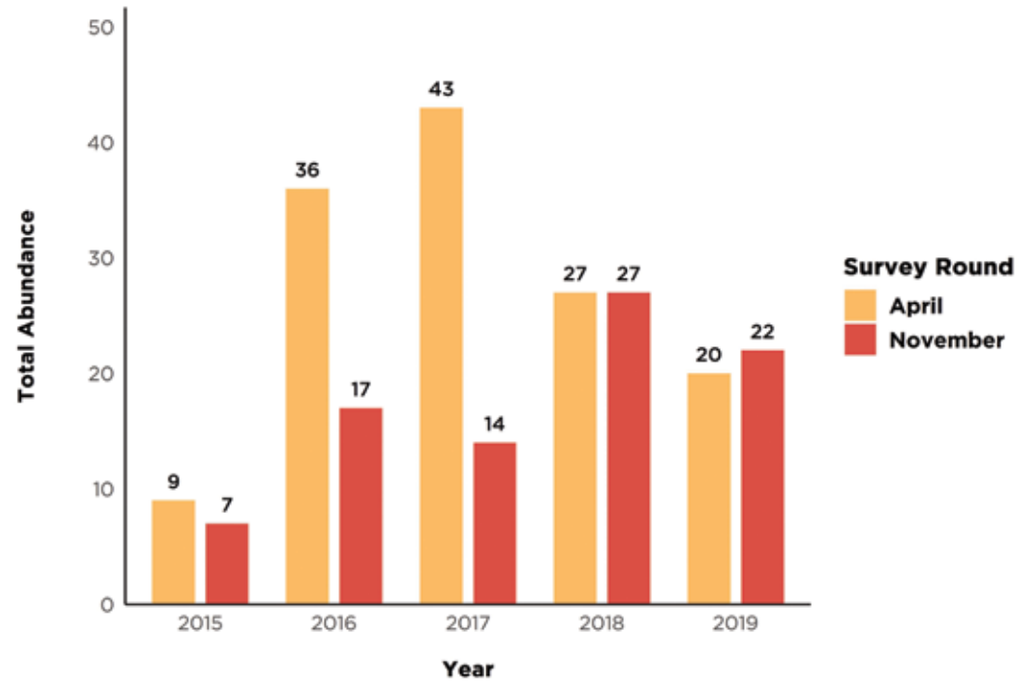
This species is widespread across Singapore and found in many areas of secondary growth, where it forages in the understorey and lower canopy in vocal family groups. It was recorded at 26 sites including various parks buffering the nature reserves as well as the Southern Ridges.

## Preliminary Trends and Conservation

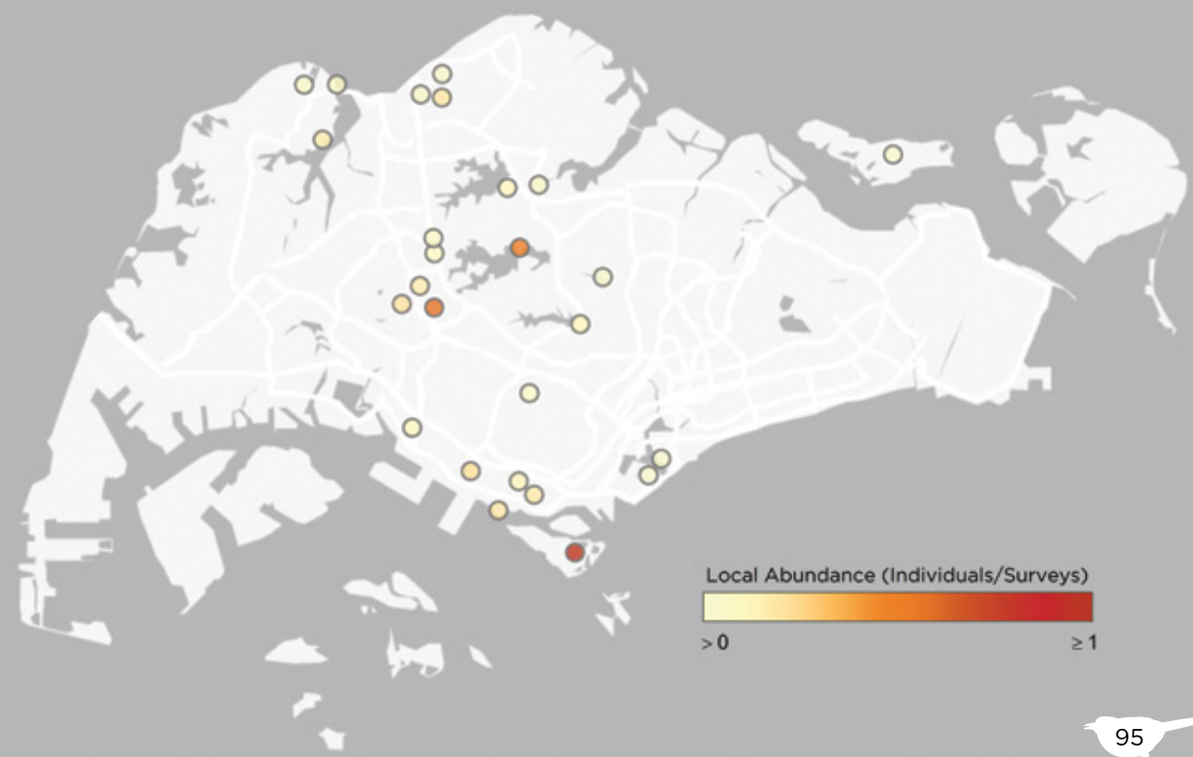
Detection rates of this species appear to have increased following its inclusion in the list of forest birds that volunteers were trained to look out for starting in 2016. Like many resident birds, this species is more conspicuous during the breeding season, leading to higher counts in April surveys.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# White-crested Laughingthrush

*Garrulax leucolophus*

*Photo credit: Francis Yap*

## Characteristics and Global Range

An unmistakable bird of well-wooded parks. It has a white head and upper breast with a black face mask and chocolate-brown back, wings and tail. The native range of this species extends from northern India to much of mainland Southeast Asia.

## Distribution, Abundance and Habitat

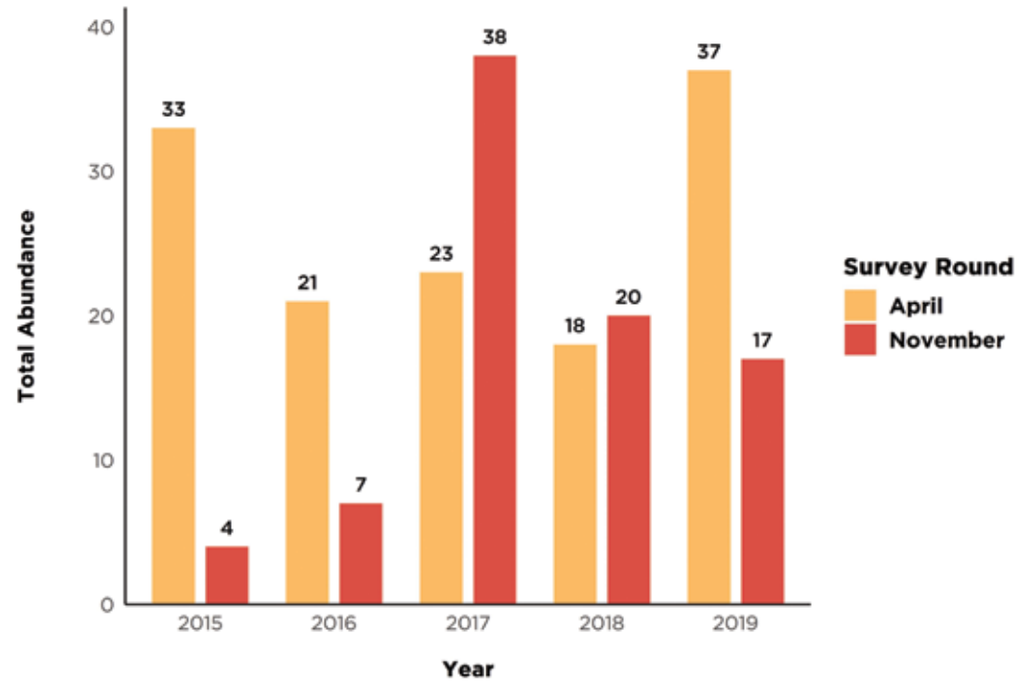
This bird is widely distributed throughout wooded areas in western and southern Singapore. It is usually seen in noisy flocks flicking leaves on the forest floor. It was first recorded at Bukit Batok Nature Park in the 1980s and remains numerous there; it has since spread to other parks in western and southern Singapore including Jurong Eco-Garden and the Southern Ridges.

## Preliminary Trends and Conservation

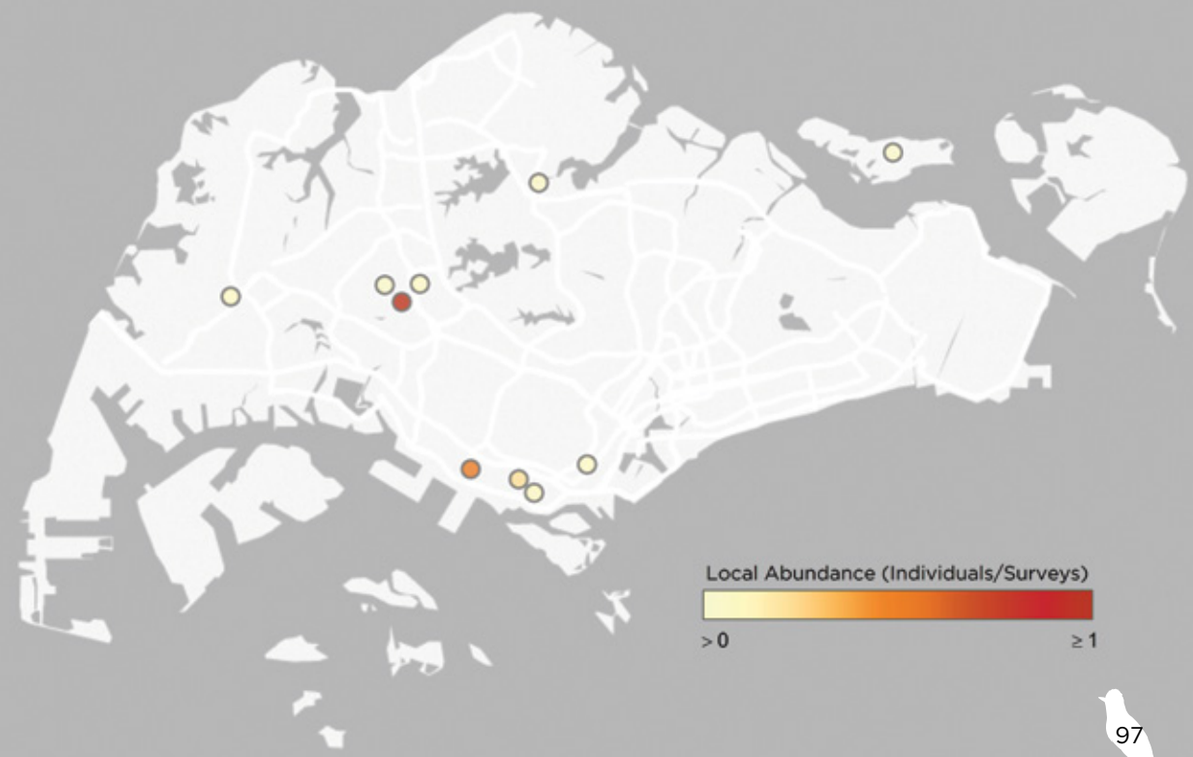
This species was seemingly introduced to Singapore via the bird trade and is now well established. However, its population appears to be largely confined to western and southern Singapore despite being present for over three decades.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Swinhoe's White-eye
*Zosterops simplex*

*Photo credit: Seow Swee Meng*

## Characteristics and Global Range

A familiar songbird from the pet trade and Singapore's only white-eye. It is a distinctive bird with a broad white eye-ring, olive-green upperparts, grey breast and a yellow forehead, throat and vent. This species is found from China and Taiwan through to Southeast Asia and the islands of Sumatra and Borneo.

## Distribution, Abundance and Habitat

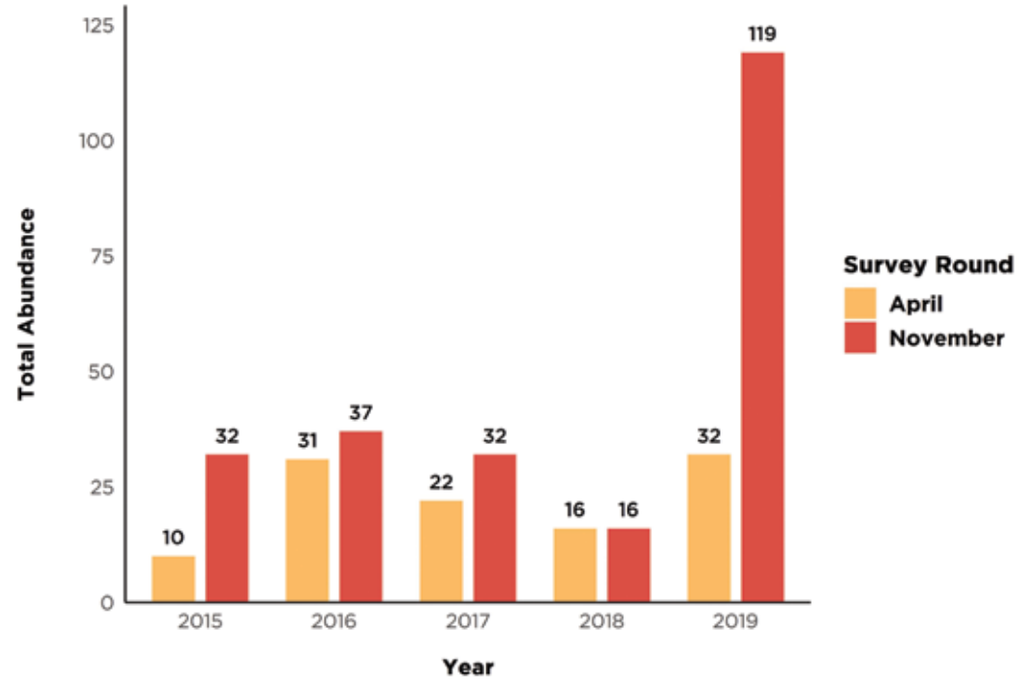
This species is widely distributed across Singapore and was recorded at 39 sites. Though formerly regarded as a species of the mangroves (Lim, 2009), it is now regularly recorded in inland parks and gardens. A largely arboreal and gregarious species, small flocks often give away their presence with their distinctive calls.

## Preliminary Trends and Conservation

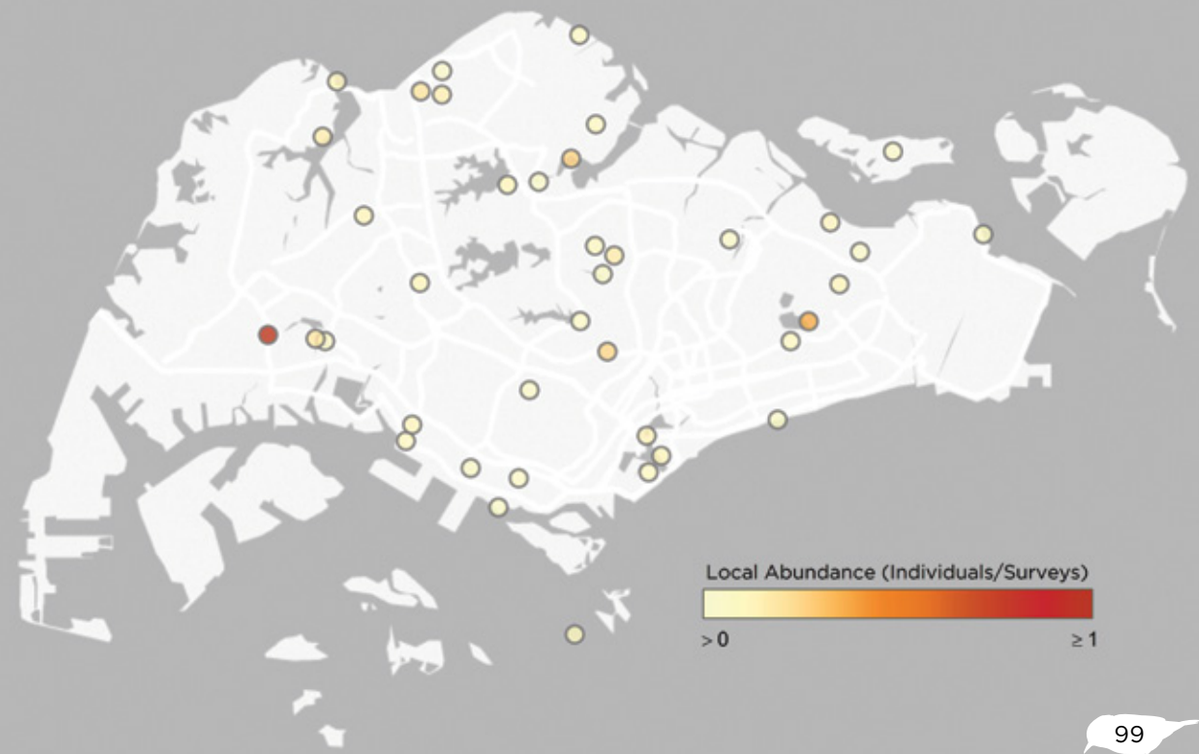
Though regarded as a fairly common resident in the 1960s, it largely disappeared from the local scene for the next 20 years before several nesting records were documented in the 1990s. Since then, the population appears to have been on the increase. Given its popularity in the local bird trade, escapees and deliberate releases from this source likely augment local flocks.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Asian Glossy Starling

*Aplonis panayensis*

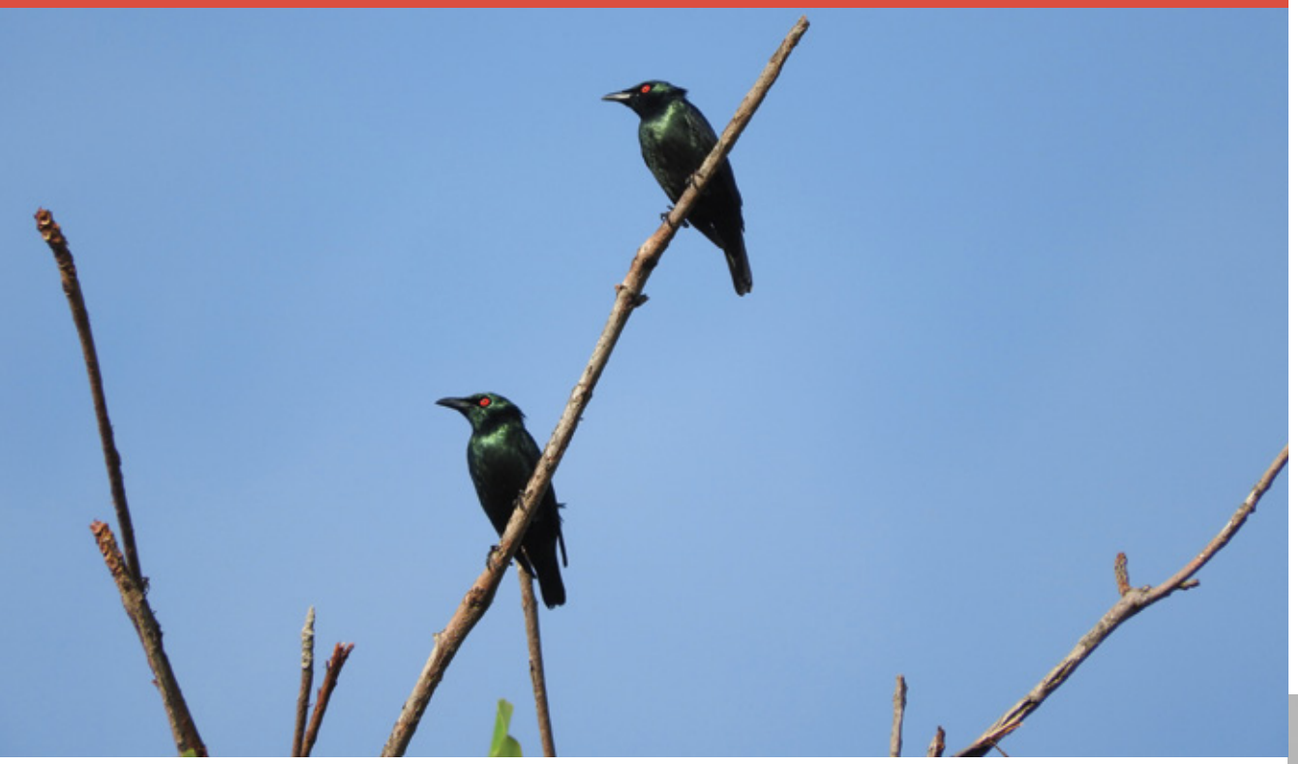


*Photo credit: Rahita Elias*

## Characteristics and Global Range

One of the few red-eyed birds in Singapore. Juveniles start off with a reddish-brown iris that becomes blood-red as they mature. Adults have an entirely glossy green plumage that can appear black in poor light. Juveniles have grey-brown upperparts with paler underparts streaked grey. Sexes are similar in appearance. This species is widely distributed across Southeast Asia.

## Distribution, Abundance and Habitat

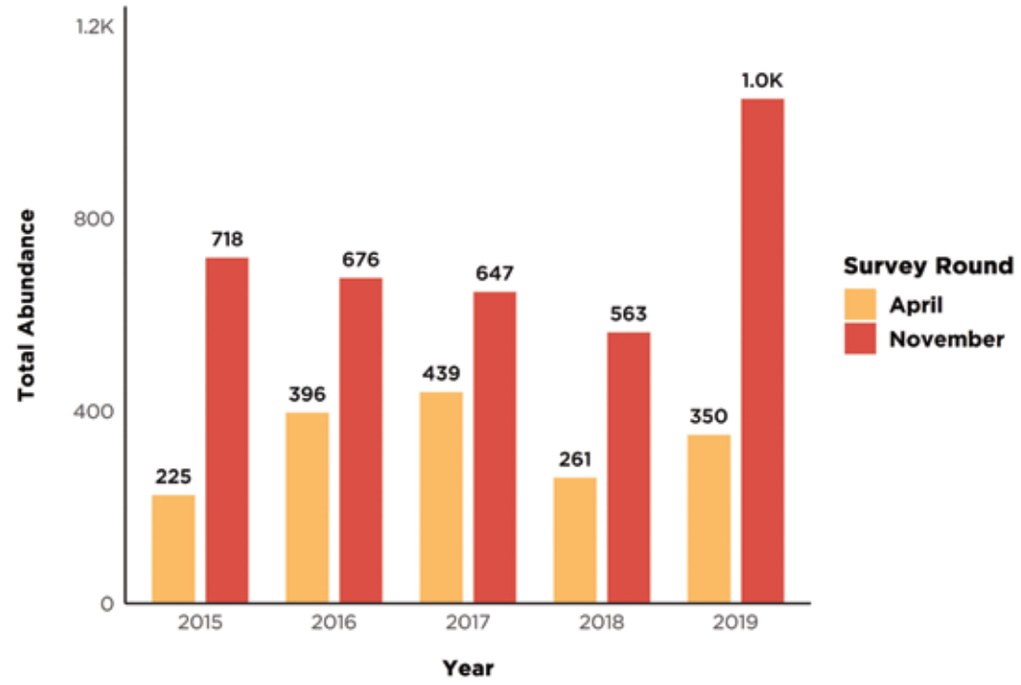
This was the second-most abundant species recorded during the surveys, after the Javan Myna (page 104). Large flocks comprising both adults and juveniles are readily observed at parks and nature reserves throughout Singapore, particularly around fruiting trees.

## Preliminary Trends and Conservation

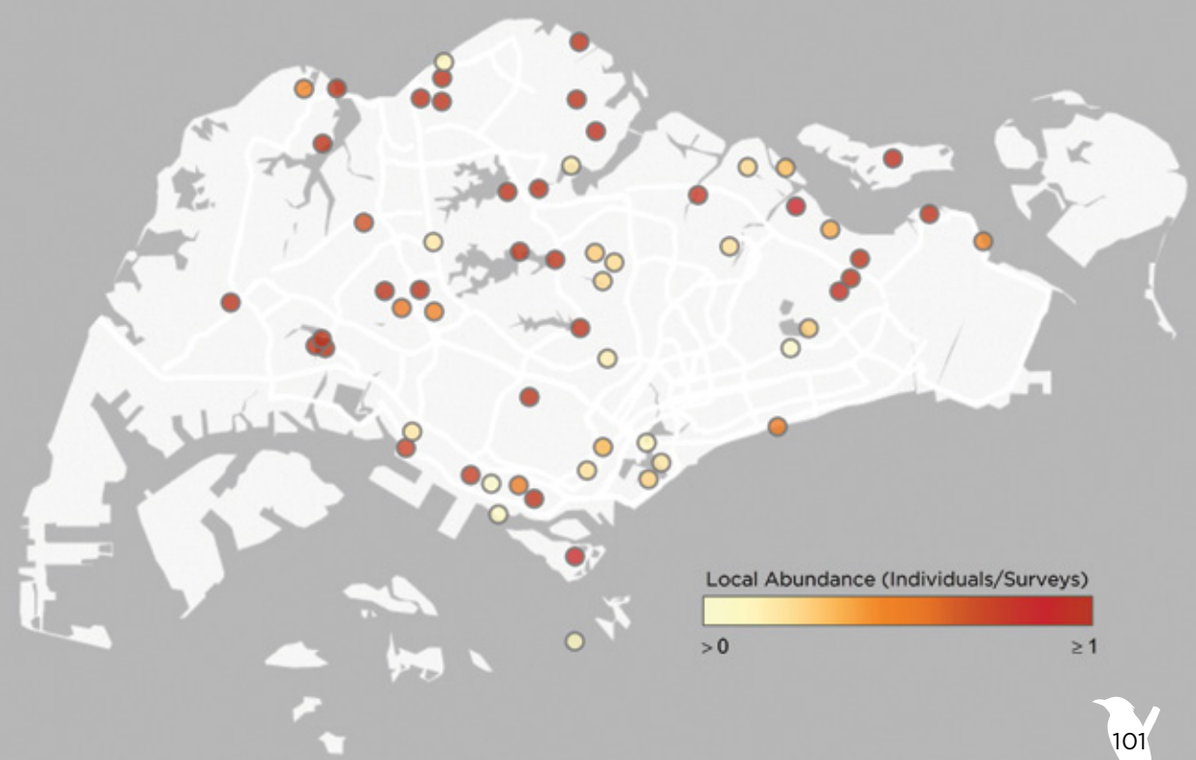
Preliminary data indicates that recorded numbers are noticeably higher during the November surveys, likely indicative of a combination of current-year fledglings joining existing flocks during this period and breeding adults dispersing to breed during the April surveys.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Common Hill Myna

*Gracula religiosa*

*Photo credit: Dillen Ng*

## Characteristics and Global Range

A large myna with glossy black plumage, white wing patches, prominent yellow-orange wattles below the eye and around the nape as well as a distinctive yellow-tipped orange bill. This species is found from northern India to many parts of Southeast Asia.

## Distribution, Abundance and Habitat

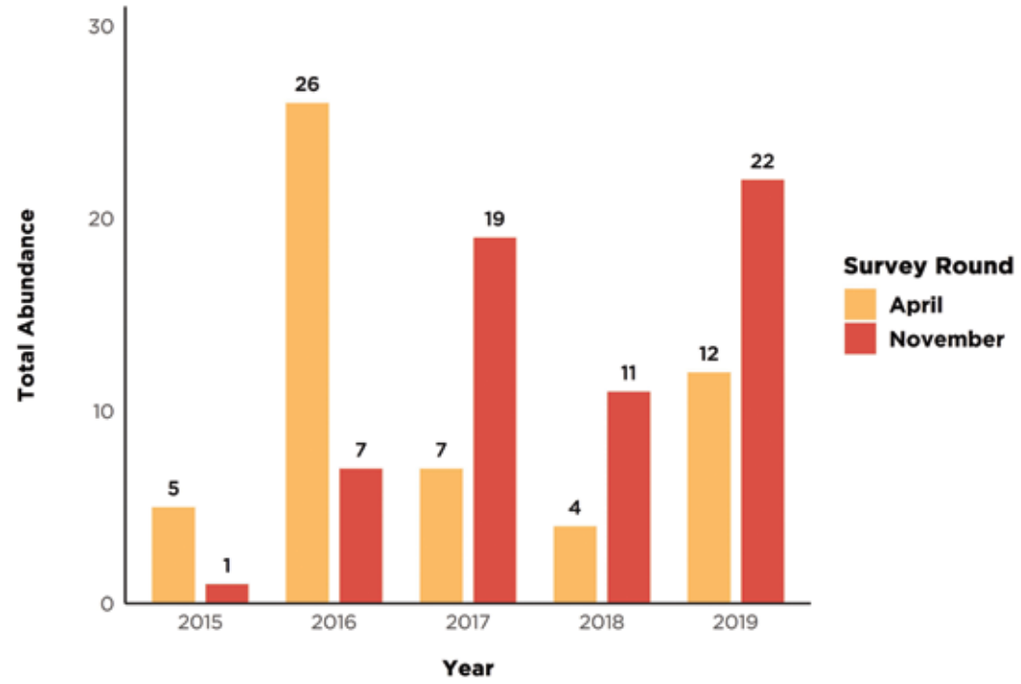
This forest-dwelling myna is not a human commensal and is usually encountered in the nature reserves and well-wooded parks. It was recorded at 15 sites, with most records coming from parks adjacent to the nature reserves.

## Preliminary Trends and Conservation

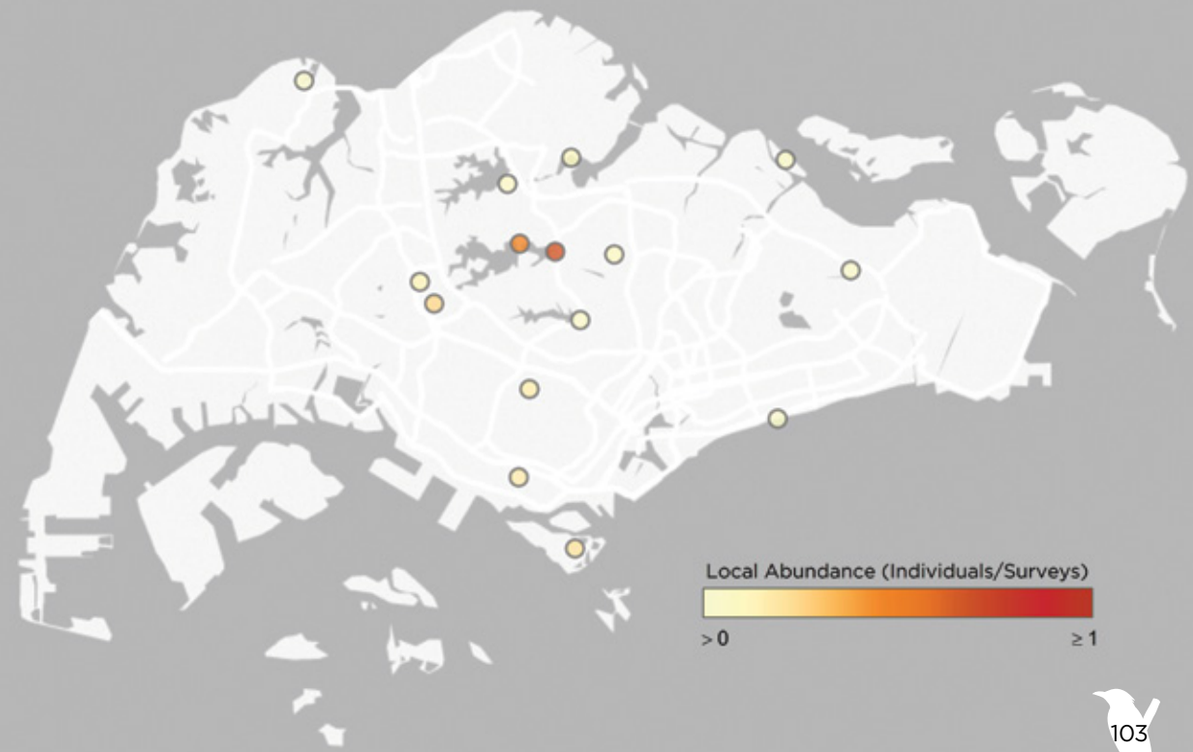
This species is popular in the pet trade due to its ability to mimic human speech, although poaching is fortunately not a major threat in Singapore. This is one of the forest birds that volunteers were trained to look for starting in 2016, and sightings appear to have increased since then. It is usually seen in pairs but groups can gather around fruiting trees, which could explain the peaks in 2016, 2017 and 2019.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Javan Myna

*Acridotheres javanicus*

*Photo credit: Max Khoo*

## Characteristics and Global Range

Singapore's most recognisable bird. Uniformly black plumage with yellow eyes, bill and legs, and white wing patches. Juveniles have slaty-grey plumage that is lighter than in adult birds. This bird is native to the islands of Java and Bali but has been introduced to many other places, mainly in Southeast Asia.

## Distribution, Abundance and Habitat

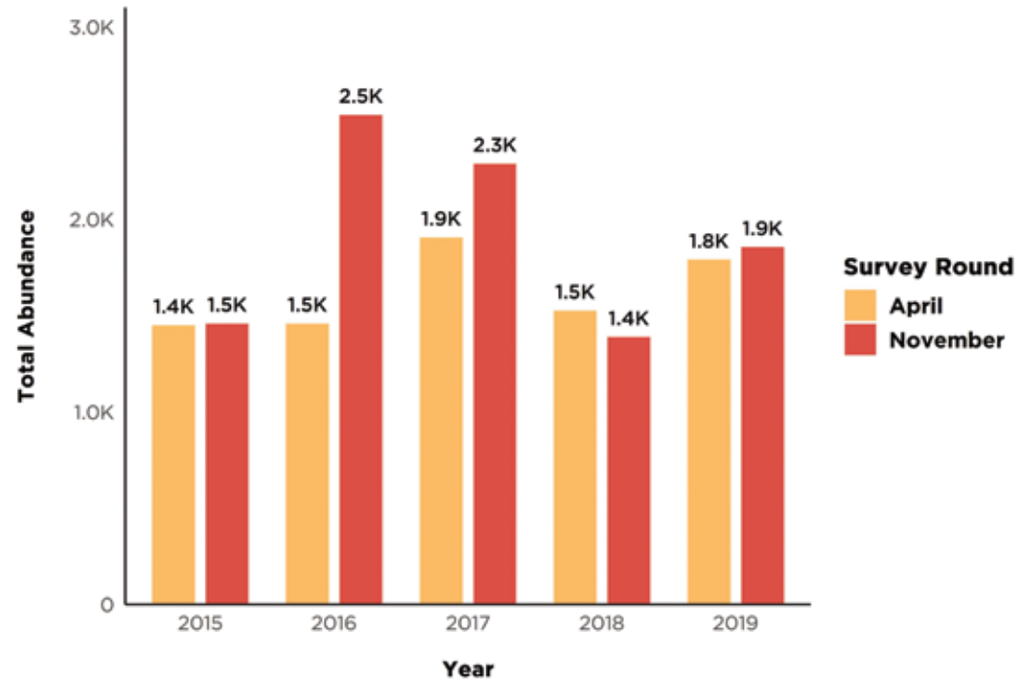
This species is by far Singapore's most abundant bird and it was recorded in high numbers at all the survey sites. A true master of adaptation, it occurs in all habitat types and ranges from our nature reserves to the Central Business District.

## Preliminary Trends and Conservation

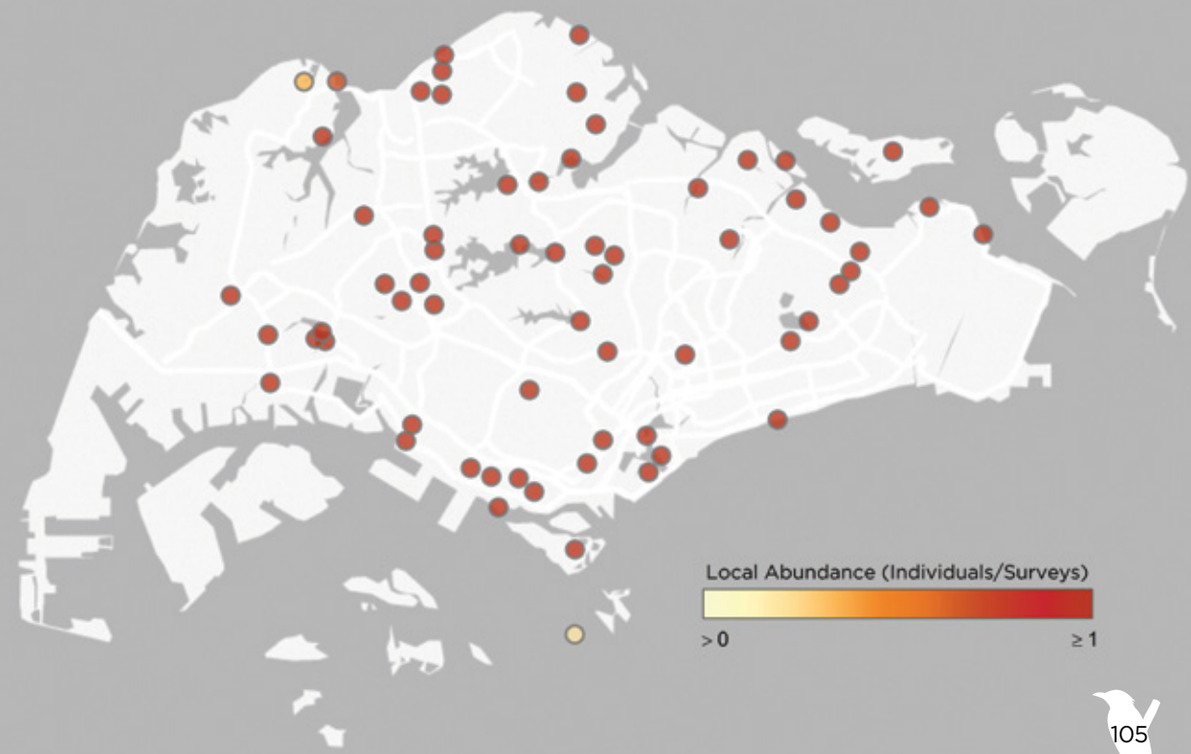
This species is classified as globally Vulnerable by the IUCN as it is very popular in the Indonesian bird trade and consequently heavily trapped in its native range. In contrast, the introduced populations in other parts of Southeast Asia, such as Singapore, are flourishing and this bird is widely regarded as a pest locally.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Common Myna
*Acridotheres tristis*

*Photo credit: Tan Rui Siang*

## Characteristics and Global Range

The less commonly encountered of the two urban mynas in Singapore. This species is readily recognised by the combination of a black head and yellow skin around the eye coupled with a brown body and white wing patch. Individuals that are sometimes encountered with unfeathered heads are undergoing moulting. The native range of this species encompasses the Middle East, Indian subcontinent and mainland Southeast Asia. However, it has been widely introduced elsewhere.

## Distribution, Abundance and Habitat

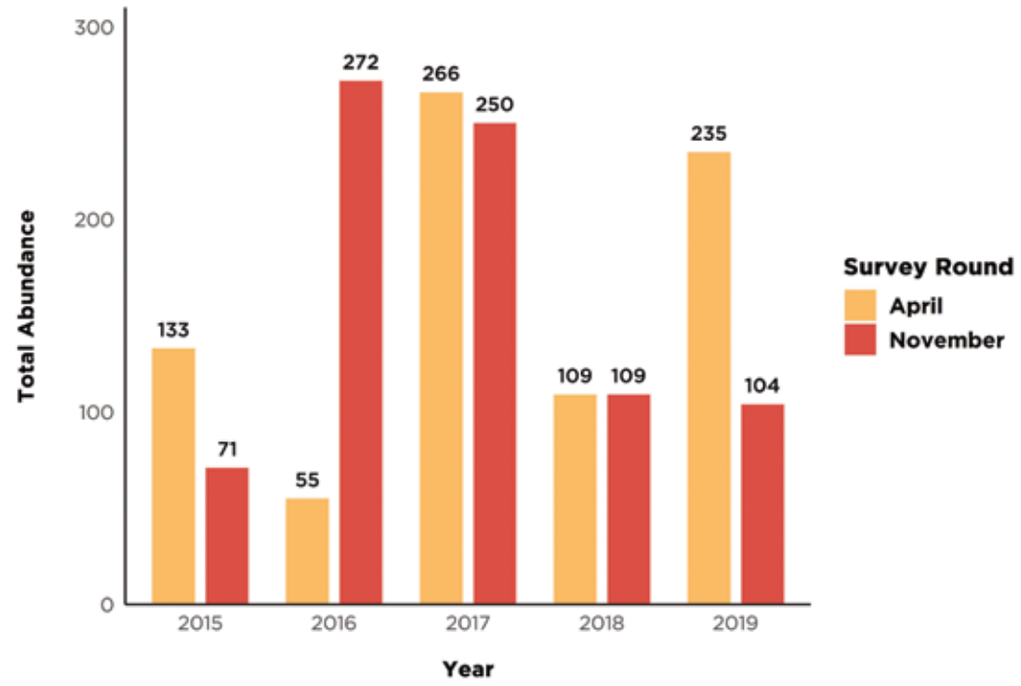
This species remains common and widespread throughout Singapore. Nevertheless, it is greatly outnumbered by the introduced Javan Myna (page 104) and is usually encountered in pairs.

## Preliminary Trends and Conservation

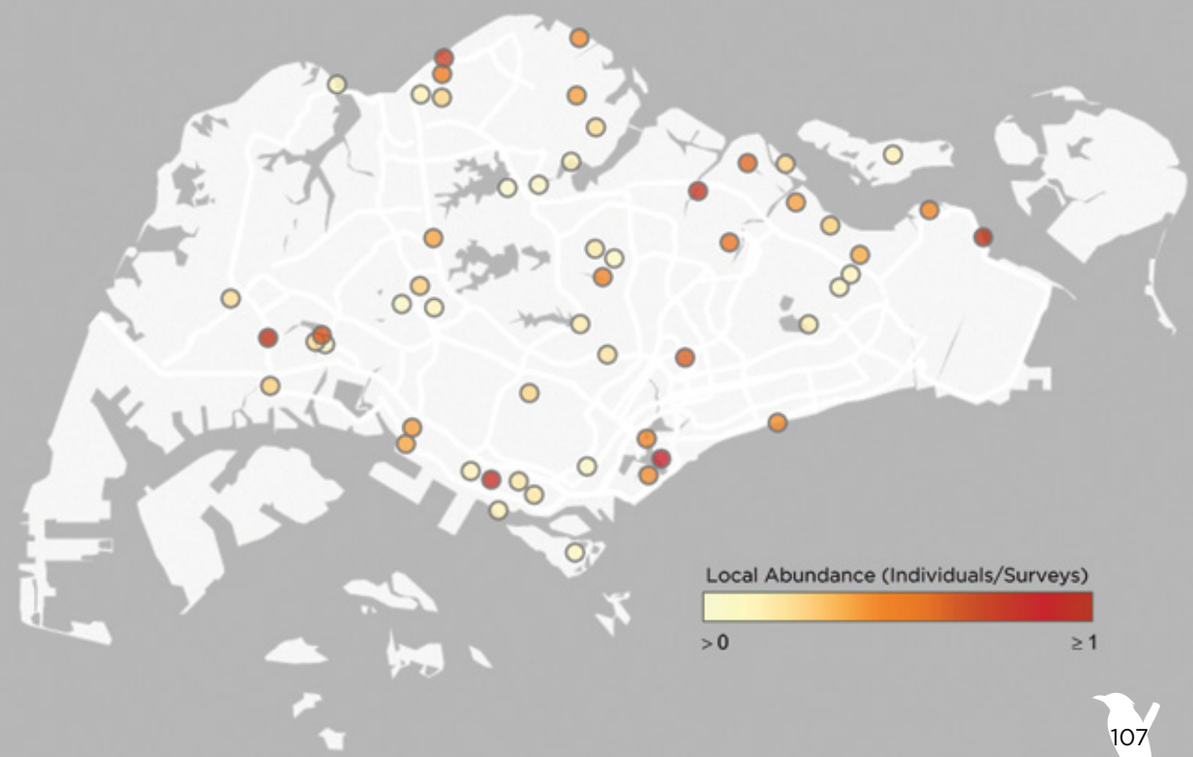
This bird has been identified as one of the "World's 100 Worst Invasive Species" (Lowe et al., 2000). However, in Singapore its population appears to have declined since its peak in the 1950s, possibly due to competition with the ubiquitous Javan Myna.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Daurian Starling

*Agropsar sturninus*

*Photo credit: Francis Yap*

## Characteristics and Global Range

A handsome migratory starling, usually observed in flocks. Both sexes have a greyish head and underparts that contrast with a dark back, wings and tail, as well as a prominent white wing patch. Males have an indistinct purple back and glossy wings, while females are generally duller. This species breeds in East Asia and migrates to Southeast Asia during the northern winter.

## Distribution, Abundance and Habitat

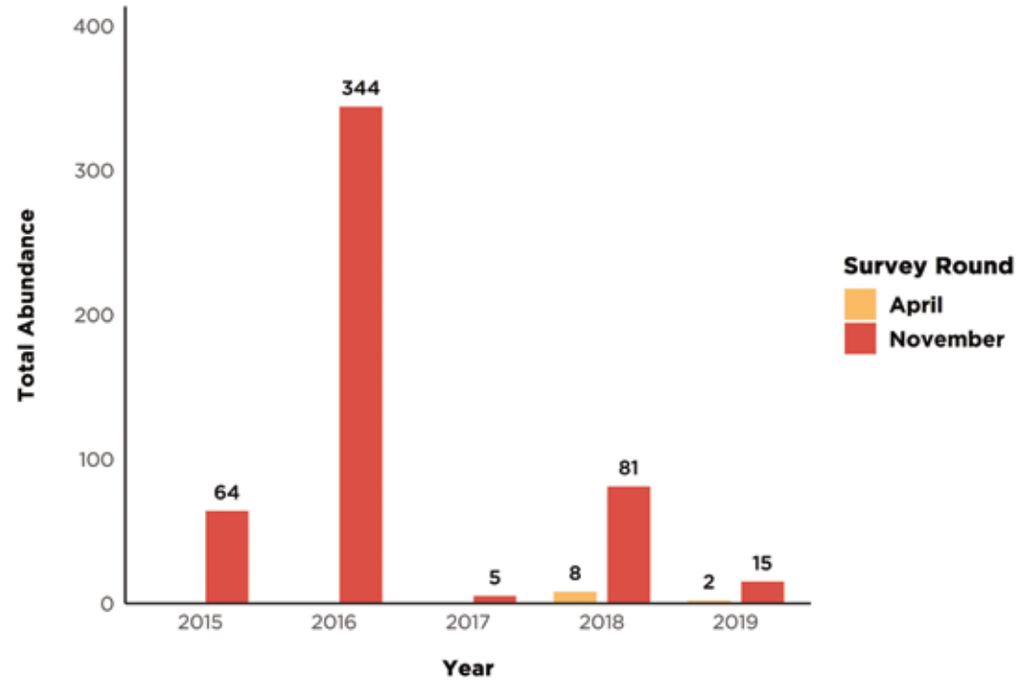
This species is a common passage migrant and winter visitor to Singapore and was recorded at 23 sites. It can be found in a variety of habitats ranging from urban parks to grasslands. Like many starlings, it is highly gregarious and regularly forms mixed flocks with the resident Asian Glossy Starling (page 100), where it is easily overlooked.

## Preliminary Trends and Conservation

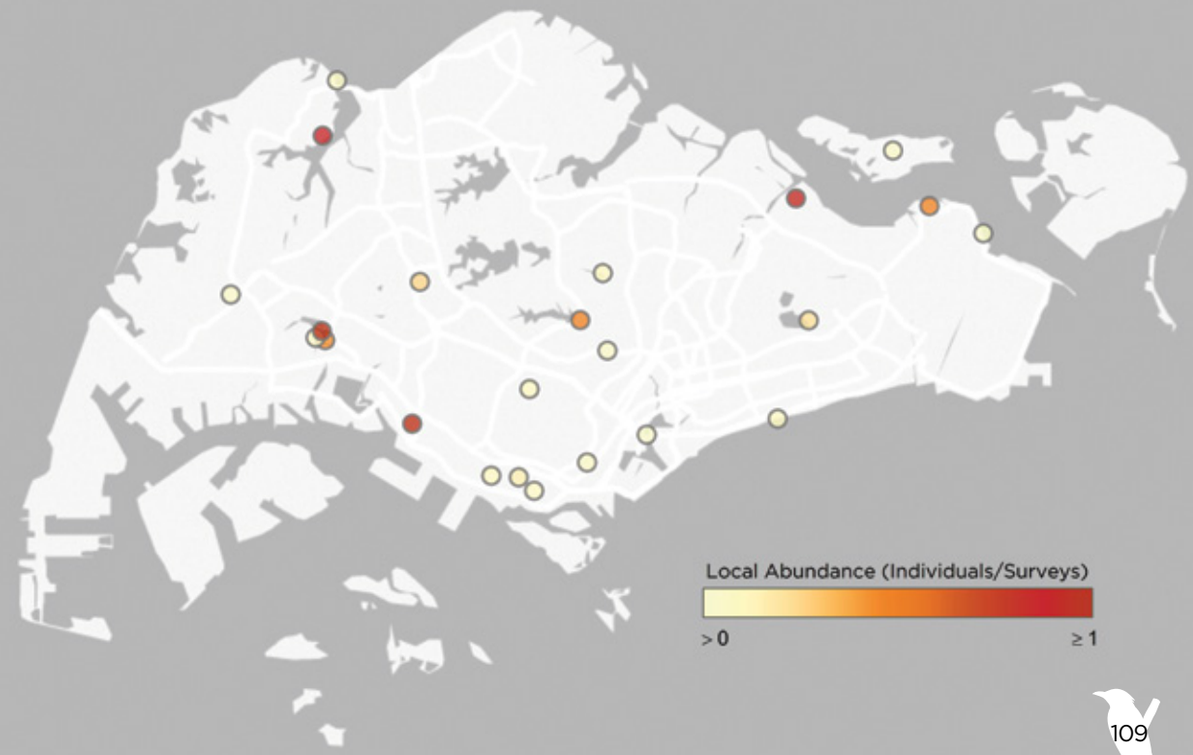
Anecdotal observations along the wider migratory flyway suggest that populations of this migratory starling have declined in recent times, and this is reflected in the low numbers of this species recorded during the survey period. In addition, this bird is also difficult to pick out amongst large flocks of Asian Glossy Starlings.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Oriental Magpie-Robin

*Copsychus saularis*

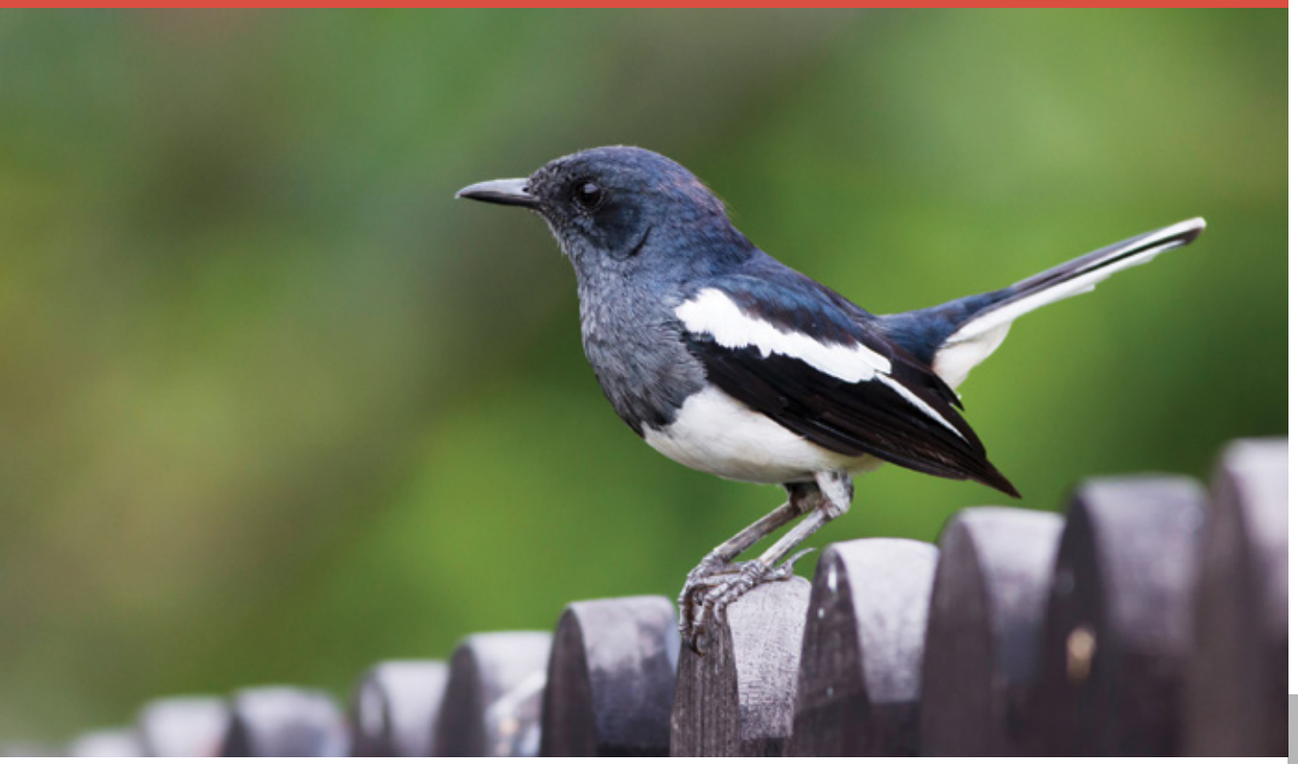


*Photo credit: Sebastian Tan*

## Characteristics and Global Range

An excellent songster best identified by its distinctive, far-carrying song. Both sexes are predominantly two-toned with glossy black (male) and greyish (female) upperparts and breast contrasting sharply with a white belly and vent. A white wing patch and outer tail feathers are also prominent identification features. This is a familiar species throughout the Indian subcontinent, southern China and Southeast Asia.

## Distribution, Abundance and Habitat

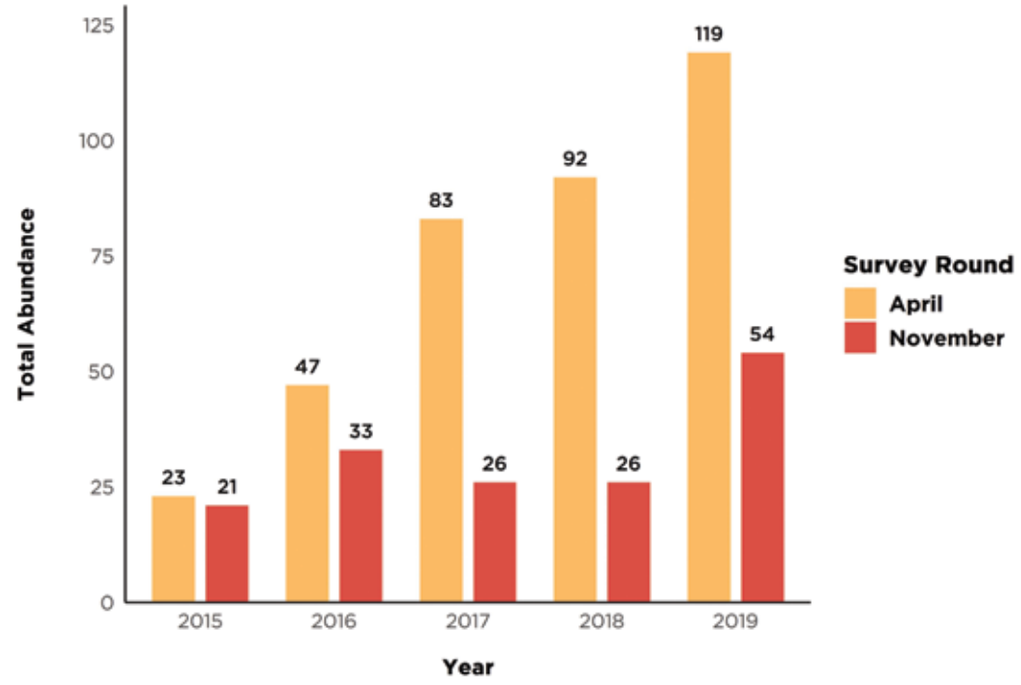
This species favours wooded areas interspaced with open clearings, where it surveys the landscape from elevated perches before swooping down on unsuspecting prey, in addition to foraging at ground level. With the emergence of this microhabitat in many of Singapore's parks as planted trees mature, this species has also become more numerous and widespread, and was recorded at 51 survey sites.

## Preliminary Trends and Conservation

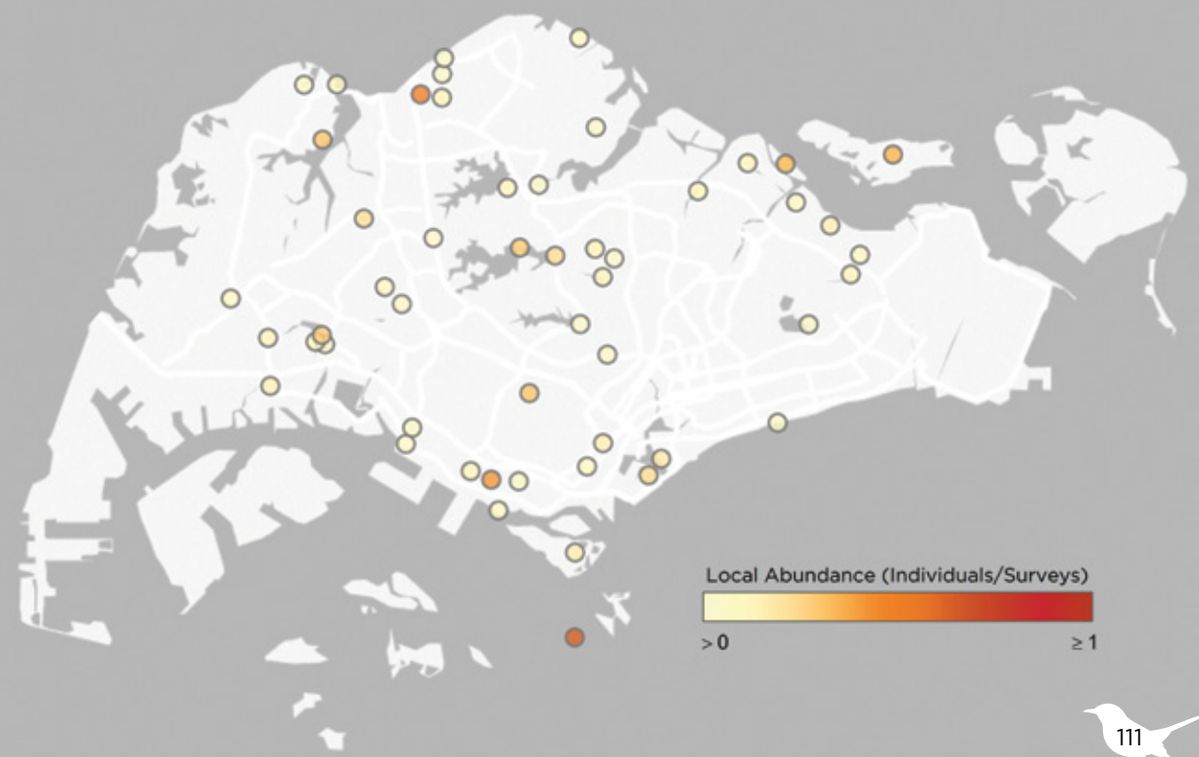
A common bird in Singapore prior to World War II, it was classified as nationally Endangered by the 1980s due to a decline in population, likely caused by trapping for the songbird trade. The population seems to be recovering, as reflected by an upward trend during the April surveys. The lower numbers recorded during the November surveys may reflect that this species disperses after breeding.



### Number of Individuals Observed per Survey Round




### Local Abundance per Survey Site



# Asian Brown Flycatcher

*Muscicapa latirostris*

*Photo credit: Francis Yap*

## Characteristics and Global Range

The most commonly encountered migratory flycatcher in Singapore. A drab bird with grey-brown upperparts and whitish underparts with greyish flanks. Note also its white eye-ring and short black bill, with the lower mandible having a yellowish base. This species breeds in central Siberia and East Asia and winters in Southeast Asia.

## Distribution, Abundance and Habitat

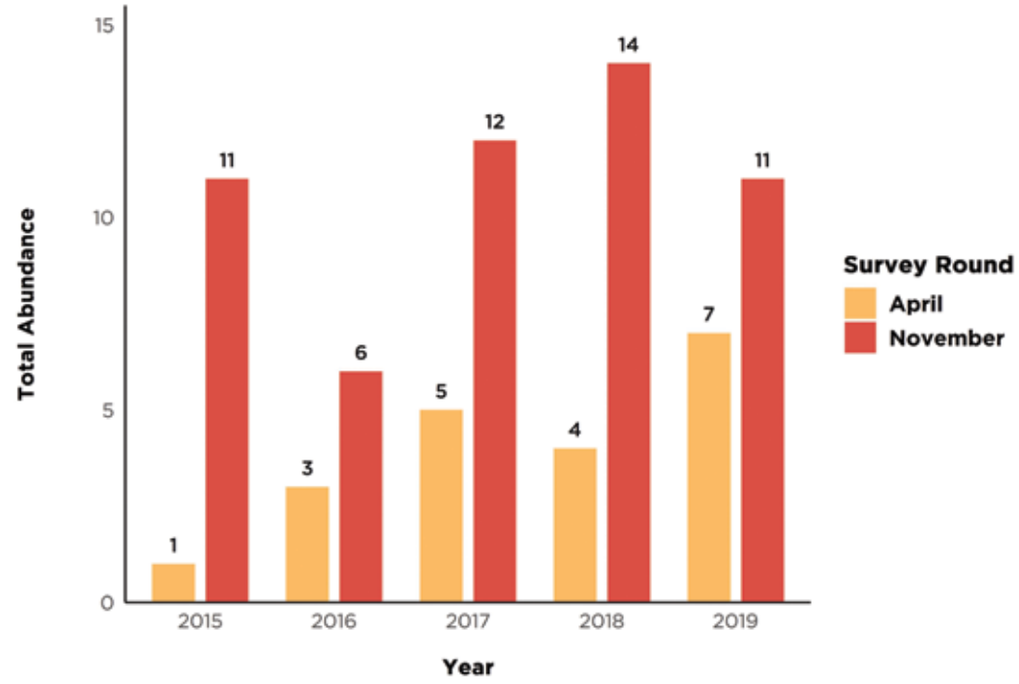
The most adaptable of all the migratory flycatchers in Singapore, it is regularly seen in urban areas such as public carparks and in roadside trees. It has a habit of sallying for insects from a favoured perch high in the tree canopy, and this regular movement and its distinctive call make it relatively easy to detect. It was recorded at 31 sites.

## Preliminary Trends and Conservation

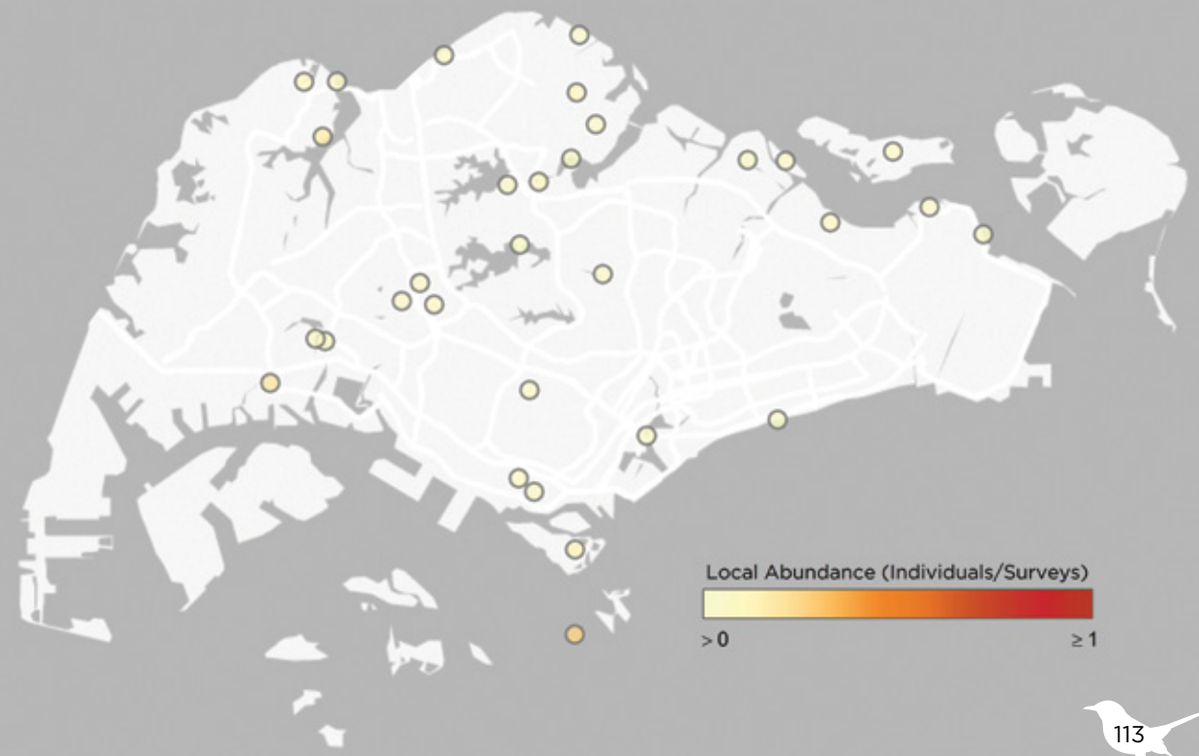
As with many migratory landbirds, the peak passage period for this species seems to be between late October and early November. Birds detected during the April surveys are likely individuals that have spent the winter in Singapore and are preparing to return to their breeding grounds.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Scarlet-backed Flowerpecker

*Dicaeum cruentatum*

*Photo credit: Ang Wee Boon*

## Characteristics and Global Range

One of Singapore's smallest and most attractive urban birds. Males are easily recognised by the scarlet crown that extends in a line down the nape and back to the rump. This feature contrasts sharply with their otherwise black face and glossy blue wings. Females have a generally drab grey-brown plumage but a prominent red rump. This species is found from northeast India and southern China through mainland Southeast Asia and the islands of Borneo and Sumatra.

## Distribution, Abundance and Habitat

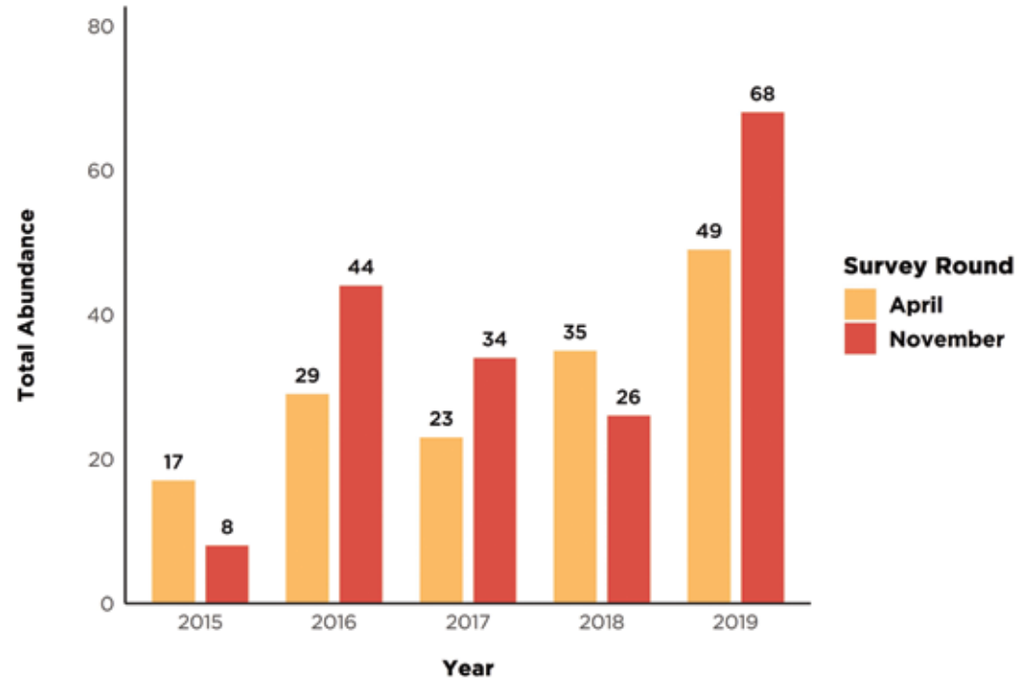
Of the five species of flowerpecker found in Singapore, this is the only urban-adapted species that is readily observed across the island. It was recorded at 45 sites in both urban parks as well as parks on the edge of the nature reserves.

## Preliminary Trends and Conservation

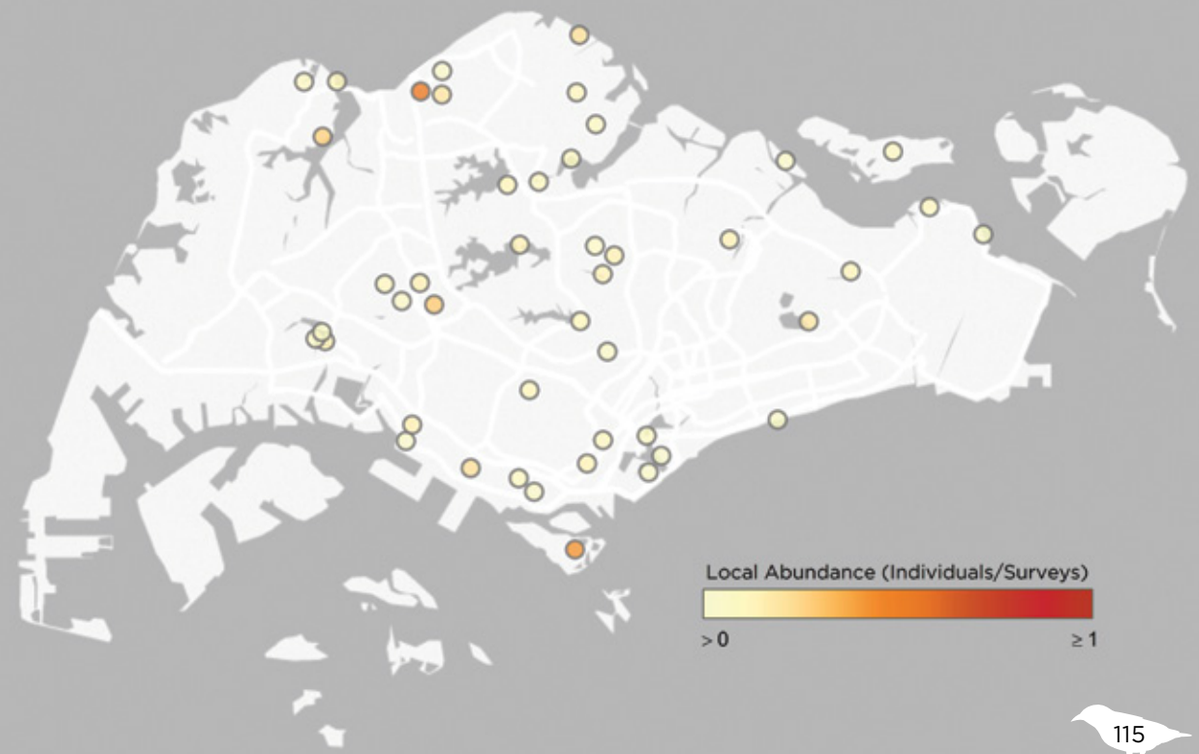
The population appears to be increasing and may be benefitting from the widespread planting of native plants such as the Singapore Rhododendron (*Melastoma malabathricum*), providing extra food sources for this bird.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Brown-throated Sunbird

*Anthreptes malacensis*

*Photo credit: Daniel Wee*

## Characteristics and Global Range

Larger than the Olive-backed Sunbird (page 118), with a shorter bill and red eyes in both sexes. Males are striking in good light, with a glossy green-blue crown and nape, metallic blue wing patch, rump and tail together with a dull brown throat and yellow underparts. Females are olive-brown above and dull yellow below, and have a distinctive “broken” yellow eye-ring. This species is found across Southeast Asia from Indochina to the islands of Indonesia.

## Distribution, Abundance and Habitat

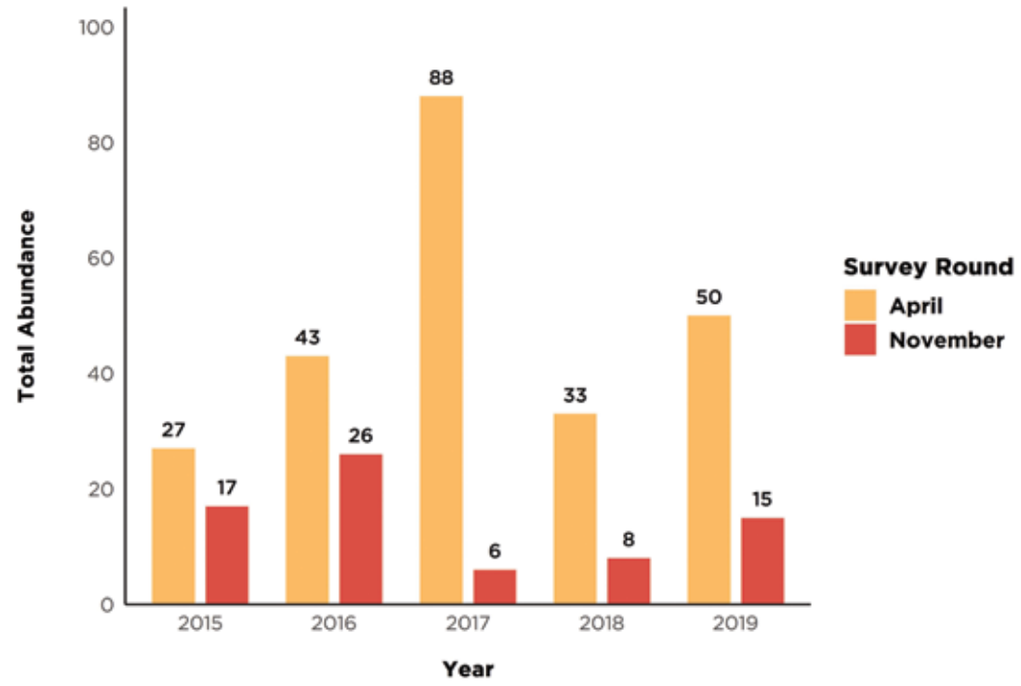
Together with the Olive-backed Sunbird, these two sunbirds are anecdotally known as the “urban sunbirds”. This species was recorded at 47 sites, reflecting its adaptability to our urban environment. However, it was less commonly encountered than the Olive-backed Sunbird.

## Preliminary Trends and Conservation

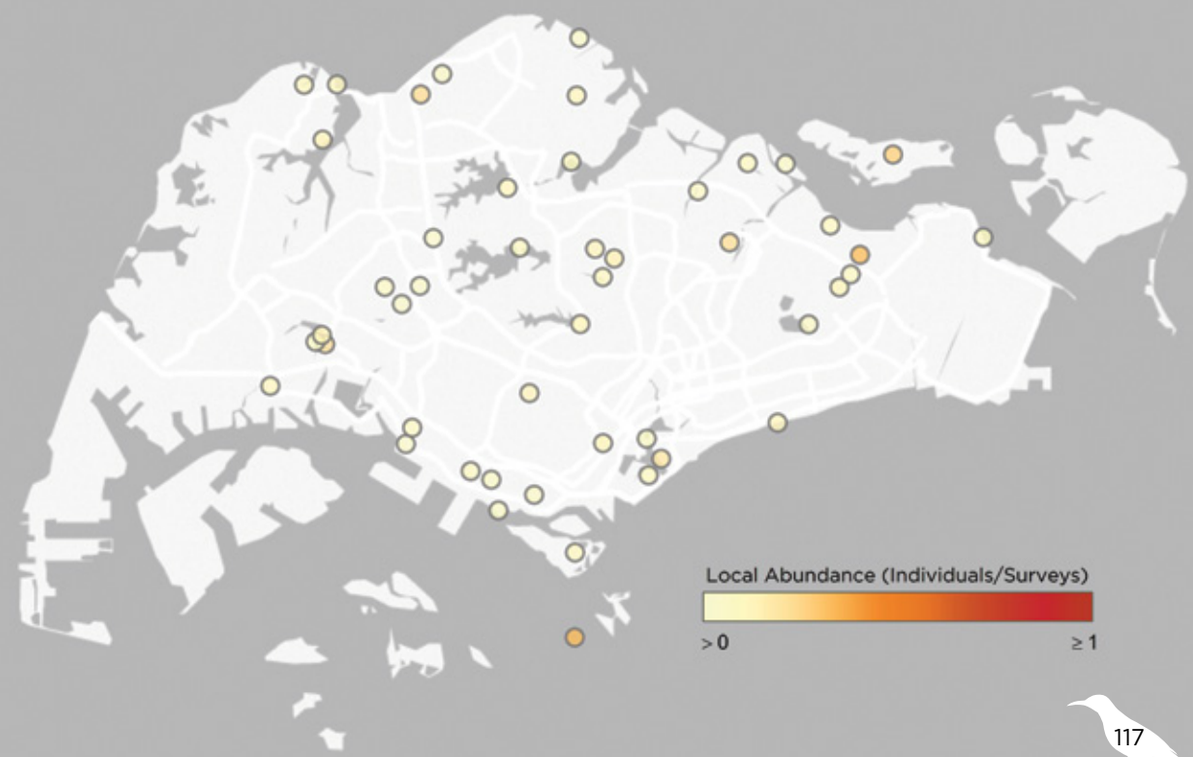
This species is generally less frequently observed than the Olive-backed Sunbird, likely due to its more arboreal habits. Males are particularly conspicuous during the breeding season when they sing from the tops of tall trees, and this behaviour could partially explain why the bulk of the sightings are in April.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Olive-backed Sunbird

*Cinnyris jugularis*

*Photo credit: Con Foley*

## Characteristics and Global Range

One of the most distinctive urban birds in Singapore. Males are readily identified by their glossy blue throat and upper breast alongside olive-brown upperparts and a yellow belly. Females are olive-brown above and entirely yellow below with black eyes, a short yellow eyebrow and broad white tail tips. This species has a large distribution that ranges from southern China through Southeast Asia down to New Guinea and northern Australia.

## Distribution, Abundance and Habitat

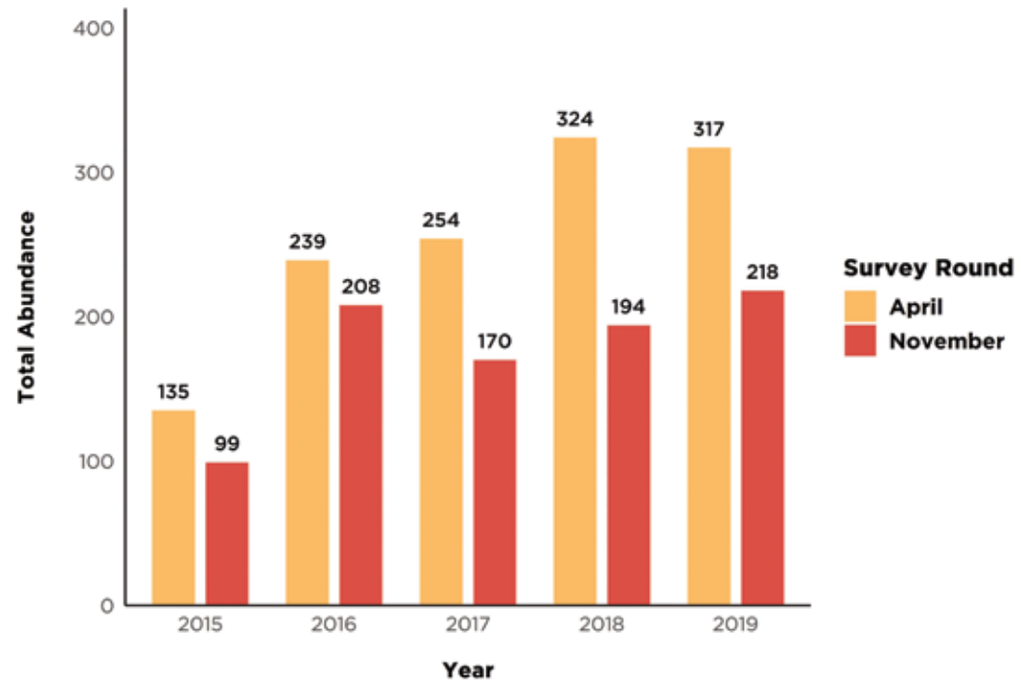
This highly urban-adapted species can be found in all habitats across Singapore, where it pollinates both native and ornamental plants and regularly nests close to and even within human habitation. It was recorded at 62 sites.

## Preliminary Trends and Conservation

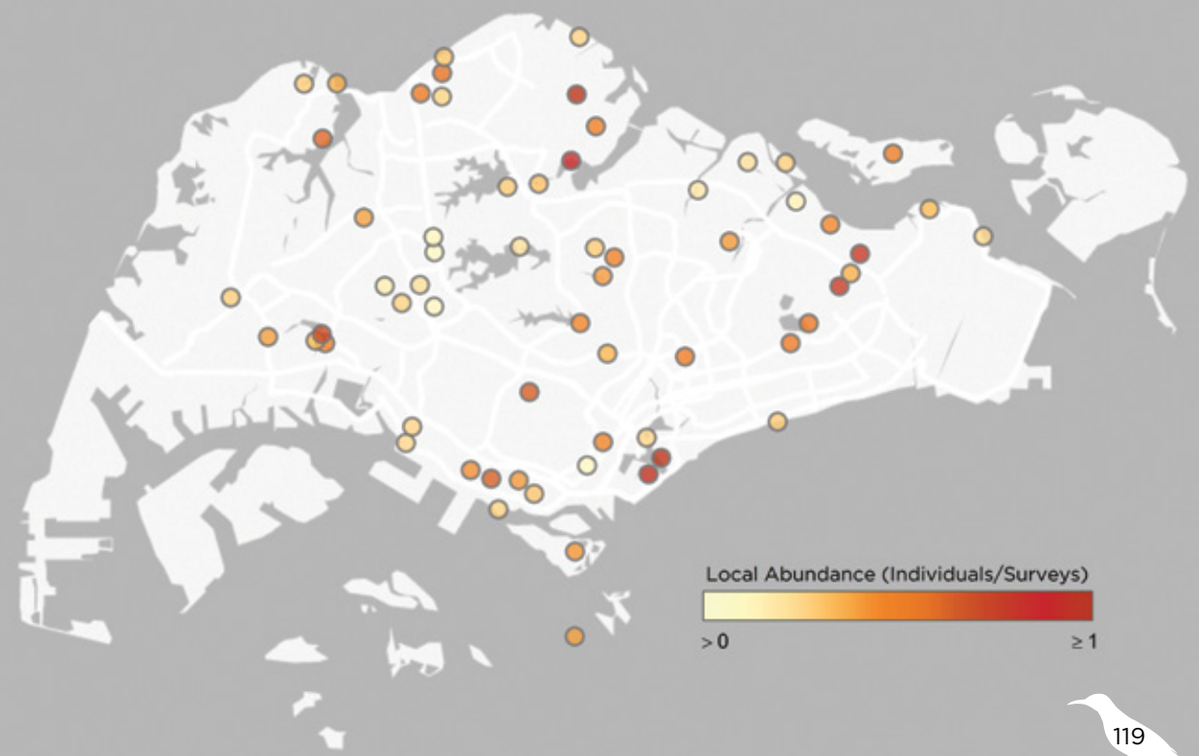
Habitat enhancement efforts targeting pollinators in many of our parks in recent years are likely to have benefitted this species, due to its ability to feed on a wide variety of ornamental flowering shrubs. An upward trend in individuals recorded was observed during the survey period.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Eurasian Tree Sparrow

*Passer montanus*

*Photo credit: Lee Hin Jin*

## Characteristics and Global Range

A well-known human commensal, readily identified by its chestnut crown, black face mask, cheek patch and chin, white neck, generally brown upperparts streaked black and buffy underparts. This species has a very large global range and is found from Western Europe to the islands of eastern Indonesia. It has also been introduced to North America and Australia.

## Distribution, Abundance and Habitat

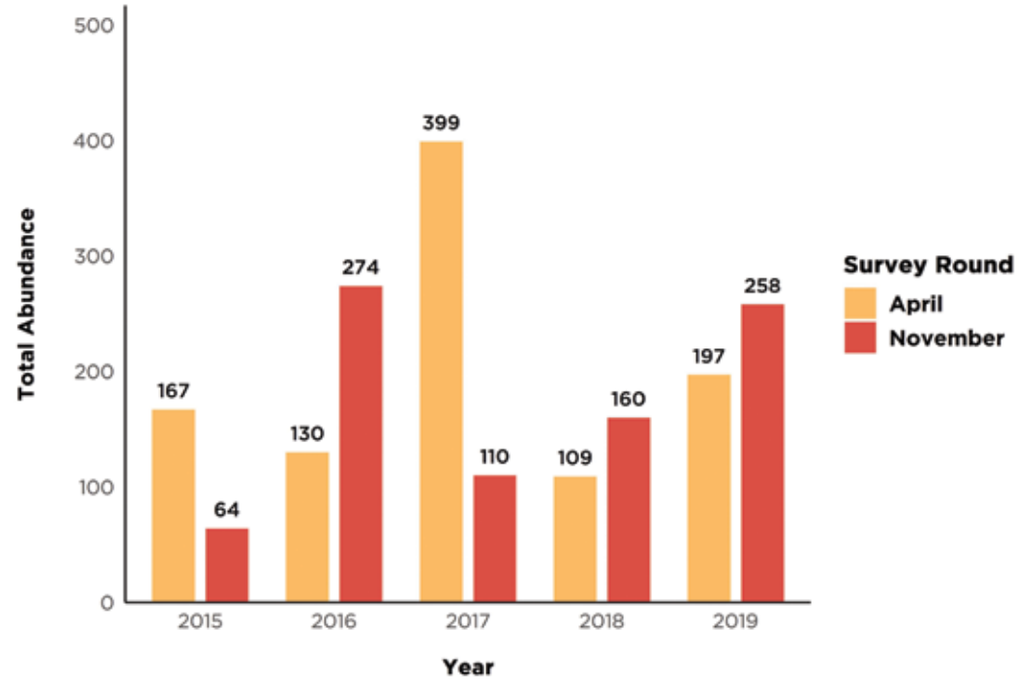
Generally regarded as a terrestrial forager of seeds and grain, in Singapore this species has adapted to living around food centres and wet markets where a ready supply of its favoured food is available. Despite being recorded at 52 survey sites, it is arguably less common in our green spaces compared to urban areas.

## Preliminary Trends and Conservation

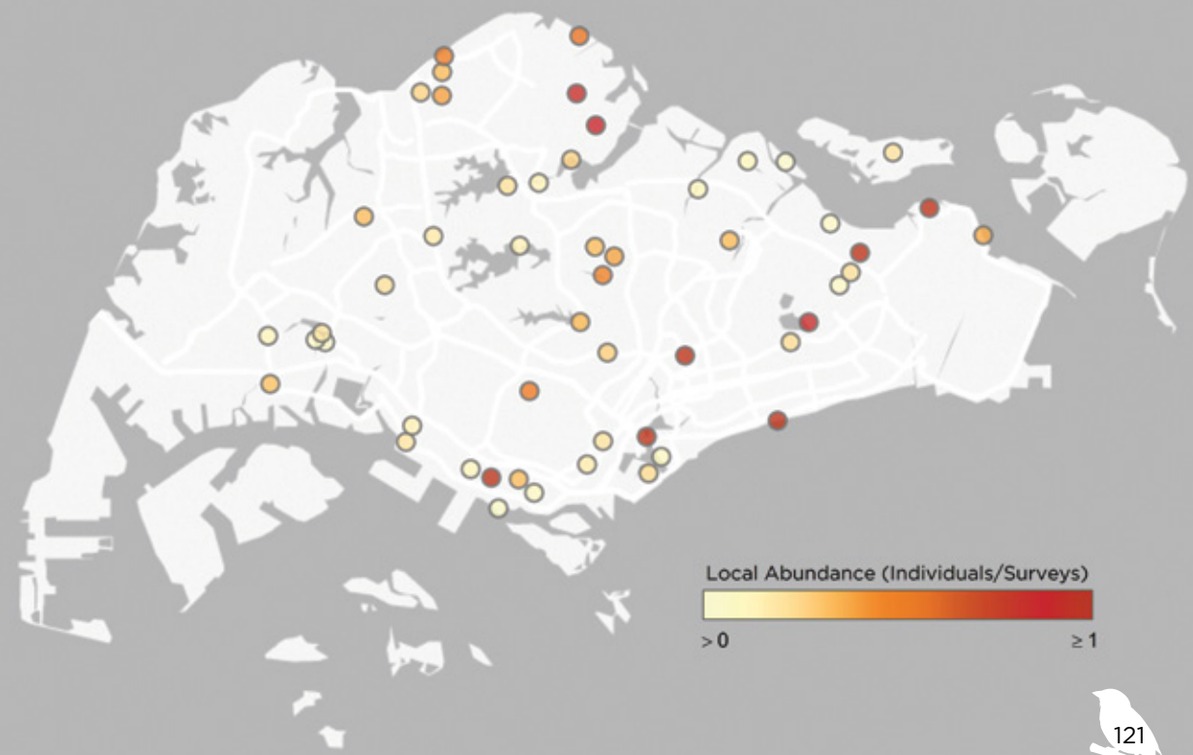
Sites with nearby food and beverage outlets, such as the Singapore Botanic Gardens and East Coast Park, had higher counts of this species. The peak between November 2016 and April 2017 may have coincided with a good breeding season for this species.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



# Scaly-breasted Munia

*Lonchura punctulata*

*Photo credit: Mark Chia*

## Characteristics and Global Range

Often mistaken for a sparrow with its brown upperparts, but note its whitish underparts with prominent black scales and thick robust bill. Juveniles are uniformly drab brown with a black bill. This species is widespread across Asia and can be found from the Indian subcontinent through to the islands of eastern Indonesia.

## Distribution, Abundance and Habitat

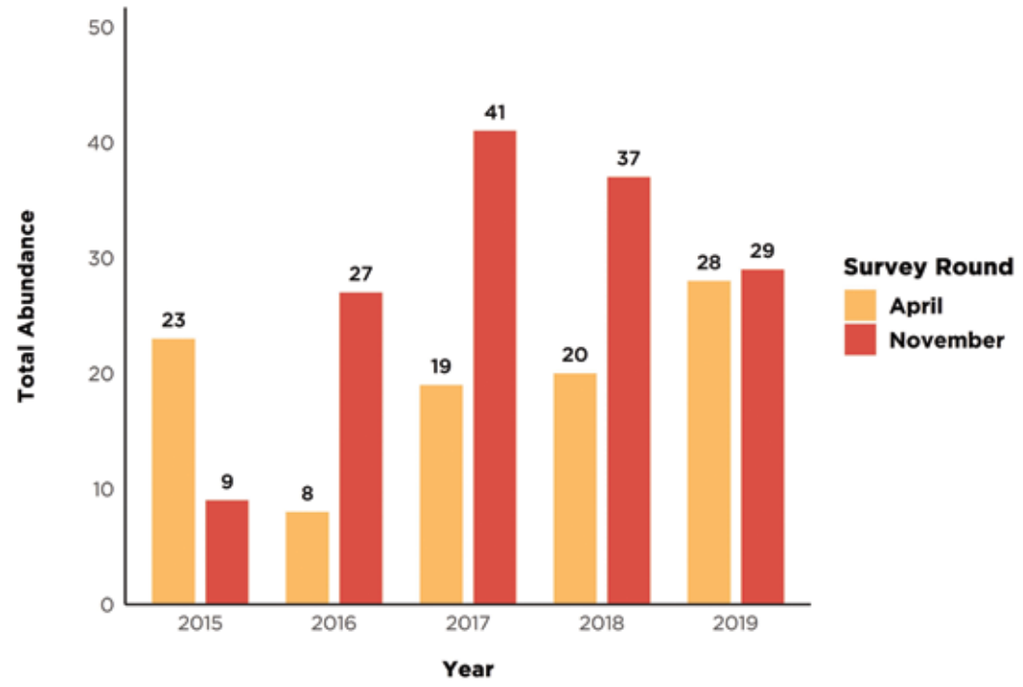
The most commonly encountered munia species in Singapore, this species has adapted well to pockets of grassland and lawns in our urban landscape. In addition to places such as Bishan-Ang Mo Kio Park and Coney Island Park, it is also present in parks on the edge of nature reserves, providing evidence of its adaptability. This bird is highly gregarious and often forms large feeding flocks, particularly when grasses are seeding.

## Preliminary Trends and Conservation

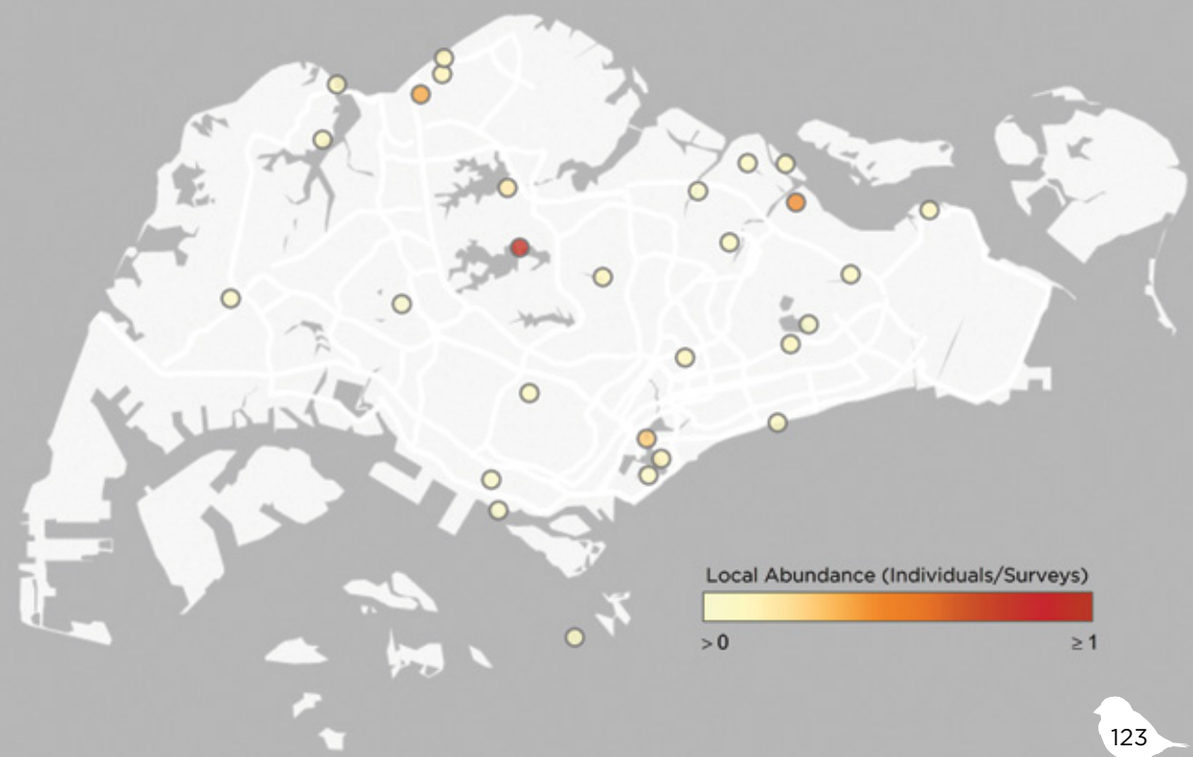
The generally lower numbers recorded in April may be reflective of established pairs leaving their local flocks to breed during the breeding season.



## Number of Individuals Observed per Survey Round




## Local Abundance per Survey Site



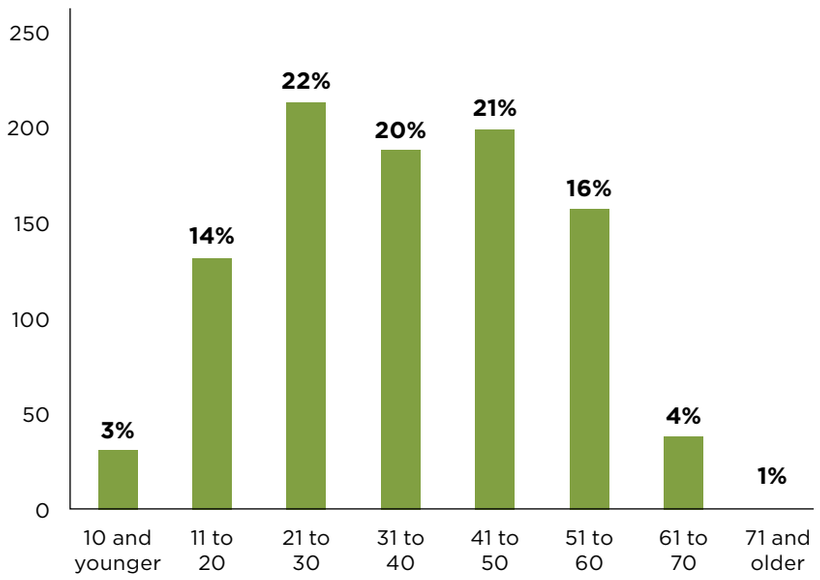
## A Focus on People

Since 2015, the Garden Bird Watch has grown to include over 1,100 citizen scientists. On top of that, we have had corporate group sign-ups and students from more than 10 schools joining us.

For some, volunteering during Garden Bird Watch means spending time outdoors together with friends or family. Of the more than 1,100 citizen scientists, 26% have taken part with their family, while 17% have taken part with a group of peers. George Cheah, a long-time volunteer (who is now a facilitator for CIN Biodiversity Watches as well), says that "Garden Bird Watch holds a special place for me as it was the first Watch that I joined with my family members. Thanks to Garden Bird Watch, I am motivated and look forward to going out into the gardens for some exercise and fresh air, knowing that I am contributing to the survey and monitoring efforts. My family and I also get to learn more about birds while enjoying some family bonding time."

Through the years, citizen scientists of all ages have participated in the Garden Bird Watch. The youngest volunteer to date was a 4-year-old who accompanied her parents, while the eldest volunteer was 76 years old. NParks is looking at ways to increase participation amongst youths and multi-generational families with young children and seniors.

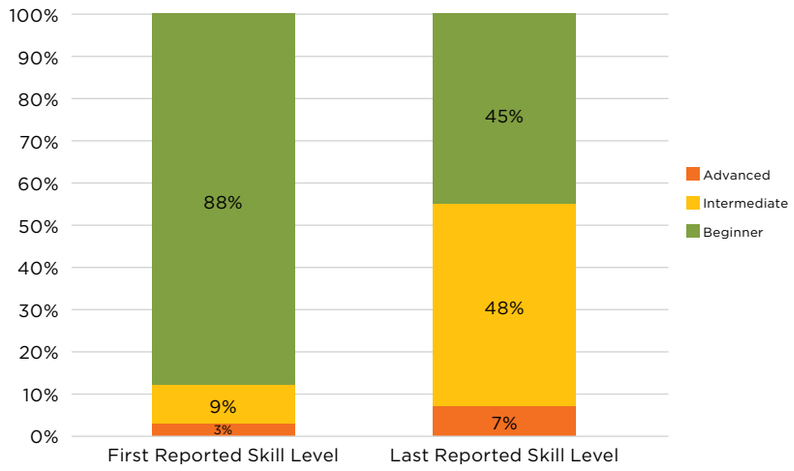
**Volunteers by Age Group**




## Developing Volunteers

Around a quarter of Garden Bird Watch volunteers take part regularly, with some who have even participated in nearly every survey so far. Before each survey round, we have our volunteers do a self-assessment of their level of birdwatching skill based on the number of local bird species they can identify. Among our returning volunteers, we found that their skill levels improve with experience. Over 80% of this group initially reported themselves at 'beginner' level, while more than half of these volunteers reported intermediate or advanced birdwatching skills in the last Garden Bird Watch round that they participated in. It is likely that our returning volunteers have a strong interest in birdwatching to begin with, and so enjoy improving their skills as they further their interest. With the intermediate training sessions introduced in 2016, they have an additional opportunity to hone their identification skills and in return, help to collect valuable data on the birds that appear in more challenging sites such as forests and buffer parks.

**Reported Skill Levels for New vs Returning Volunteers**




Besides improving their birdwatching skills, many volunteers have also taken the opportunity to further their knowledge of other types of wildlife. For instance, about 40% of Garden Bird Watch volunteers have taken part in other watches of the same format, namely the Heron, Butterfly and Dragonfly Watches. Many of them also take part in wildlife monitoring programmes led by NParks and other nature groups in Singapore.

With the help of dedicated and passionate citizen scientists, we recorded close to 70,000 birds between 2015 and 2019. Garden Bird Watch is not possible without our volunteers, and we hope that the number of participants continues to grow in years to come.

## Bishan-Ang Mo Kio Park

Bishan-Ang Mo Kio Park is a large 62-hectare park in central Singapore. The park was reopened in 2012 after several years of redevelopment focused on naturalising a 3-km stretch of the Kallang River within the park under PUB's Active, Beautiful, Clean Waters (ABC Waters) Programme.

These enhancements have benefitted various waterbirds, in particular the uncommon **Purple Heron**, which now has a small breeding population within the park. Other resident and migratory waterbirds that have been recorded along this stretch of river include the **Cinnamon Bittern**, **Chinese Pond Heron**, **Slaty-breasted Rail** and **Watercock**. The reedbeds along the river are regularly visited by seed-eaters such as the **Scaly-breasted Munia** and **Chestnut Munia**.

The northwestern region of the park, which is comparatively more well wooded, is also located in close proximity to the nature reserve. As such, some forest birds occasionally forage in this sector, including the **Blue-winged Leafbird** and **Orange-bellied Flowerpecker**. The large trees here are also used by raptors such as the **Crested Goshawk** and **Spotted Wood Owl** as nesting sites.

### Highlighted Species

Cinnamon Bittern, Chinese Pond Heron, Grey Heron, Purple Heron, Grey-rumped Treeswift, Stork-billed Kingfisher, Blue-crowned Hanging Parrot, Brown Shrike, Olive-winged Bulbul, Oriental Magpie-Robin, Yellow-rumped Flycatcher, Blue-winged Leafbird



## Gardens by the Bay

*Photo credit: Chad Davis*

Opened in 2011, Gardens by the Bay is situated on 101 hectares of reclaimed land. While best known for its conservatories and iconic Supertrees, the Gardens also supports rich birdlife with more than 100 bird species recorded to date.

One of the main attractions of the outdoor areas are the Dragonfly and Kingfisher Lakes located in the Bay South Garden. These picturesque water bodies have been enhanced to attract waterbirds, and these efforts have paid off with regular records of uncommon species such as the **Lesser Whistling Duck**, **Black Bittern**, **Ruddy-breasted Crake** and **Watercock**. The heavily wooded banks serve as ideal perching points for kingfishers and raptors while the migratory **Oriental Reed Warbler** and other smaller birds skulk in the reedbeds.

A visit to the thematic gardens and woodlands that surround these lakes can also be very productive. Notable forest birds recorded in these areas include the **Red-legged Crake**, **Greater Coucal** and **Rufous Woodpecker**. During the migratory season, a variety of migratory cuckoos, flycatchers and warblers may also be observed.

### Highlighted Species

Von Schrenck's Bittern, Baillon's Crake, Ruddy-breasted Crake, Oriental Pied Hornbill, Rufous Woodpecker, Crow-billed Drongo, Asian Red-eyed Bulbul, Oriental Reed Warbler, Orange-bellied Flowerpecker

# Jurong Lake Gardens

The third and newest of Singapore's national gardens, Jurong Lake Gardens is a large, accessible green space in western Singapore that supports a surprising variety of birds.

In terms of habitat, the Gardens is dominated by parkland with large, mature trees including many fig trees. These fig trees attract frugivores including the uncommon **Jambu Fruit Dove** when they are in fruit. The large trees are also used as roosting and nesting sites for uncommon resident raptors like the **Crested Goshawk**, **Spotted Wood Owl** and **Buffy Fish Owl**.

Jurong Lake is a large water body in the heart of the Gardens and pockets of freshwater wetlands can be found along its banks. There is a well-known **Grey Heron** heronry at the Japanese Garden and the herons are regularly seen throughout the area. Other birds that can be found around the lake include the **Black-crowned Night Heron**, **Grey-headed Fish Eagle** and **Little Tern**.

The Gardens is also a well-known stopover point for various migratory birds and a visit during the migratory season may yield sightings of rarities such as the **Black Bittern**, **Himalayan Cuckoo** and **Ruddy Kingfisher**.

### Highlighted Species

Grey Heron, Japanese Sparrowhawk, Buffy Fish Owl, Stork-billed Kingfisher, Common Kingfisher, Banded Woodpecker, Tiger Shrike, Daurian Starling, Oriental Magpie-Robin, Orange-bellied Flowerpecker



# Kranji Marshes

This 57-hectare nature park is one of the largest tracts of freshwater marshes left in Singapore. Located near Sungei Buloh Wetland Reserve, it is one of Singapore's best birdwatching sites.

The vast majority of the marshes is located within the Core Conservation Area which is open once a month to the public. However, the Raptor Tower and the paved track leading to it are open all year round and provide excellent birdwatching opportunities. The woodland and grassland habitats on the way in are home to numerous birds including woodpeckers, cuckoos and raptors while winter migrants include the **Yellow-rumped Flycatcher** and **Pallas's Grasshopper Warbler**.

The Raptor Tower gives a panoramic view of the marshes and is an ideal place to scan for waterbirds such as the **Black-backed Swamphen** and **Red-wattled Lapwing**. During the migratory season, migrating raptors such as the **Black Baza** and **Japanese Sparrowhawk** may be seen soaring over the tower.

This site is also a hotspot for rarities. In recent years, Singapore's first **Booted Warbler** was recorded here as well as a host of other rarely encountered species including the **Grey-headed Lapwing** and **Asian Openbill**.

*Photo credit: Michael Toh Joo Chiang*

### Highlighted Species

Lesser Whistling Duck, Asian Openbill, Purple Heron, Changeable Hawk-Eagle, Black-backed Swamphen, Red-wattled Lapwing, Oriental Pratincole, Banded Bay Cuckoo, Plaintive Cuckoo, Rusty-breasted Cuckoo, Long-tailed Parakeet, Pallas's Grasshopper Warbler

# Pulau Ubin

Located off northeastern Singapore, the island of Pulau Ubin is largely undeveloped. It has a mosaic of habitats that support a rich variety of birds, including extensive mangrove forest and secondary forest that cover much of the island.

Pulau Ubin is well known for two species of birds. The first is the Critically Endangered **Straw-headed Bulbul**, for which the island has been identified as a global stronghold. The second is the **Oriental Pied Hornbill**, which was first observed on Pulau Ubin in the 1990s and thanks to conservation efforts is now regularly encountered throughout the island.

Other interesting birds that may be encountered on Pulau Ubin but are otherwise rarely seen on the mainland include the **Blue-winged Pitta** and **Mangrove Pitta**, both of which are resident on the island. In addition, the **White-rumped Shama** is one of the most commonly encountered birds in the island's forests.

Pulau Ubin's location on the Straits of Johor between Singapore and Malaysia means that avian dispersants from Malaysia are sometimes seen on the island. In recent years, these include the striking **Cinnamon-headed Green Pigeon** and **Black-and-red Broadbill**.

*Photo credit: Desmond Chin Khee Wei*

### Highlighted Species

Grey Heron, Green Imperial Pigeon, Greater Coucal, Oriental Pied Hornbill, Black Hornbill, Blue-winged Pitta, Mangrove Pitta, Crow-billed Drongo, Straw-headed Bulbul, Asian Red-eyed Bulbul, Abbott's Babbler, Siberian Blue Robin, Van Hasselt's Sunbird



# Singapore Botanic Gardens

*Photo credit: Ben Aw*

With a rich history dating back to 1859, the Singapore Botanic Gardens was inscribed as a UNESCO World Heritage site in 2015. More than 130 species of birds have been recorded within the Gardens.

The Gardens' wooded areas support a variety of common forest species including the **Banded Woodpecker**, **Greater Racket-tailed Drongo**, **Common Hill Myna** and **Crimson Sunbird**. Many birdwatchers visit the Gardens specifically in search of the elusive **Red-legged Crake**, which can sometimes be seen in the Rain Forest or the adjacent Palm Valley and Ginger Garden.

There are also many water bodies within the Gardens that support an associated suite of birds. These include the **Lesser Whistling Duck**, **Grey-headed Fish Eagle** and **Blue-eared Kingfisher** to name a few.

Like many of the larger green spaces in Singapore, the Gardens is an important stopover and wintering site for various species of migratory birds. Both the **Hooded Pitta** and **Blue-winged Pitta** may be observed during the migratory season, while the globally threatened **Brown-chested Jungle Flycatcher** and **Orange-headed Thrush** have also been recorded.

### Highlighted Species

Lesser Whistling Duck, Oriental Pied Hornbill, Banded Woodpecker, Long-tailed Parakeet, Greater Racket-tailed Drongo, Olive-winged Bulbul, Asian Fairy-bluebird, Common Hill Myna, Crimson Sunbird

# Checklist of Birds Spotted During Garden Bird Watch

Bolded species appear in the Featured Species chapter of this book.

| Common Name | Scientific Name | 2015 | 2016 | 2017 | 2018 | 2019 | Pages |
|---|---|---|---|---|---|---|---|
| **Anatidae** | | | | | | | |
| Lesser Whistling Duck | *Dendrocygna javanica* | | | ✓ | ✓ | ✓ | 8, 127, 129, 131 |
| **Phasianidae** | | | | | | | |
| **Red Junglefowl** | ***Gallus gallus*** | ✓ | ✓ | ✓ | ✓ | ✓ | **24** |
| **Ardeidae** | | | | | | | |
| Yellow Bittern | *Ixobrychus sinensis* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Von Schrenck's Bittern | *Ixobrychus eurhythmus* | | ✓ | | | | 15, 127 |
| Cinnamon Bittern | *Ixobrychus cinnamomeus* | ✓ | ✓ | | | | 126 |
| Black-crowned Night Heron | *Nycticorax nycticorax* | | ✓ | ✓ | | ✓ | 128 |
| Striated Heron | *Butorides striata* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Chinese Pond Heron | *Ardeola bacchus* | | ✓ | | ✓ | | 126 |
| Eastern Cattle Egret | *Bubulcus coromandus* | | ✓ | ✓ | ✓ | ✓ | Nil |
| Grey Heron | *Ardea cinerea* | ✓ | ✓ | ✓ | ✓ | ✓ | 126, 128, 130 |
| Great-billed Heron | *Ardea sumatrana* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Purple Heron | *Ardea purpurea* | ✓ | ✓ | ✓ | ✓ | ✓ | 126, 129 |
| Great Egret | *Ardea alba* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Intermediate Egret | *Egretta intermedia* | ✓ | ✓ | ✓ | | ✓ | Nil |
| Little Egret | *Egretta garzetta* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Pandionidae** | | | | | | | |
| Western Osprey | *Pandion haliaetus* | ✓ | | ✓ | ✓ | | 18 |
| **Accipitridae** | | | | | | | |
| Black-winged Kite | *Elanus caeruleus* | | | | ✓ | ✓ | Nil |
| Crested Honey Buzzard | *Pernis ptilorhynchus* | | ✓ | ✓ | ✓ | ✓ | Nil |
| Black Baza | *Aviceda leuphotes* | | ✓ | ✓ | ✓ | ✓ | 129 |
| Crested Serpent Eagle | *Spilornis cheela* | | | | | ✓ | Nil |
| **Changeable Hawk-Eagle** | ***Nisaetus cirrhatus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 14, **26**, 129 |
| Greater Spotted Eagle | *Clanga clanga* | | | | | ✓ | 15 |
| Crested Goshawk | *Accipiter trivirgatus* | | | ✓ | | ✓ | 126, 128 |
| Chinese Sparrowhawk | *Accipiter soloensis* | | | | | ✓ | Nil |
| Japanese Sparrowhawk | *Accipiter gularis* | ✓ | | ✓ | ✓ | | 128, 129 |
| Brahminy Kite | *Haliastur indus* | ✓ | ✓ | ✓ | ✓ | ✓ | 18 |
| **White-bellied Sea Eagle** | ***Haliaeetus leucogaster*** | ✓ | ✓ | ✓ | ✓ | ✓ | 18, **28** |
| Grey-headed Fish Eagle | *Haliaeetus ichthyaetus* | | ✓ | ✓ | ✓ | ✓ | 128 |
| **Rallidae** | | | | | | | |
| **White-breasted Waterhen** | ***Amaurornis phoenicurus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 18, **30** |
| Baillon's Crake | *Porzana pusilla* | | | | ✓ | | 15, 18, 127 |
| Ruddy-breasted Crake | *Porzana fusca* | | | | ✓ | ✓ | 127 |
| Black-backed Swamphen | *Porphyrio indicus* | | ✓ | | | | 18, 129 |



| Common Name | Scientific Name | 2015 | 2016 | 2017 | 2018 | 2019 | Pages |
|---|---|---|---|---|---|---|---|
| **Charadriidae** | | | | | | | |
| Red-wattled Lapwing | *Vanellus indicus* | | | ✓ | | ✓ | 129 |
| Pacific Golden Plover | *Pluvialis fulva* | ✓ | | | | | Nil |
| **Scolopacidae** | | | | | | | |
| Black-tailed Godwit | *Limosa limosa* | | | ✓ | | | Nil |
| Whimbrel | *Numenius phaeopus* | ✓ | ✓ | | | | Nil |
| Common Redshank | *Tringa totanus* | ✓ | ✓ | ✓ | ✓ | | Nil |
| Marsh Sandpiper | *Tringa stagnatilis* | | | ✓ | | | Nil |
| Common Greenshank | *Tringa nebularia* | | | ✓ | | | Nil |
| Wood Sandpiper | *Tringa glareola* | | ✓ | | | | Nil |
| Common Sandpiper | *Actitis hypoleucos* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Glareolidae** | | | | | | | |
| Oriental Pratincole | *Glareola maldivarum* | | ✓ | ✓ | | | 129 |
| **Laridae** | | | | | | | |
| Greater Crested Tern | *Thalasseus bergii* | | ✓ | | | | Nil |
| Lesser Crested Tern | *Thalasseus bengalensis* | | | | ✓ | | Nil |
| Little Tern | *Sternula albifrons* | | | ✓ | ✓ | | 128 |
| Black-naped Tern | *Sterna sumatrana* | | ✓ | | ✓ | ✓ | Nil |
| **Columbidae** | | | | | | | |
| **Rock Dove** | ***Columba livia*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 18, **32** |
| Red Turtle Dove | *Streptopelia tranquebarica* | | ✓ | ✓ | ✓ | | Nil |
| **Spotted Dove** | ***Spilopelia chinensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 18, **34**, 36 |
| Common Emerald Dove | *Chalcophaps indica* | ✓ | ✓ | | ✓ | ✓ | Nil |
| **Zebra Dove** | ***Geopelia striata*** | ✓ | ✓ | ✓ | ✓ | ✓ | 18, 34, **36** |
| Little Green Pigeon | *Treron olax* | | ✓ | ✓ | ✓ | | Nil |
| **Pink-necked Green Pigeon** | ***Treron vernans*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 18, **38** |
| Thick-billed Green Pigeon | *Treron curvirostra* | | | | ✓ | | 14 |
| Jambu Fruit Dove | *Ptilinopus jambu* | | ✓ | ✓ | | | 128 |
| Green Imperial Pigeon | *Ducula aenea* | | | ✓ | | ✓ | 14, 130 |
| Pied Imperial Pigeon | *Ducula bicolor* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Cuculidae** | | | | | | | |
| Greater Coucal | *Centropus sinensis* | | ✓ | ✓ | | ✓ | 14, 127, 130 |
| Lesser Coucal | *Centropus bengalensis* | ✓ | | ✓ | | ✓ | Nil |
| Chestnut-bellied Malkoha | *Phaenicophaeus sumatranus* | ✓ | | ✓ | | | Nil |
| Chestnut-winged Cuckoo | *Clamator coromandus* | | ✓ | | ✓ | ✓ | 15, 139 |
| **Asian Koel** | ***Eudynamys scolopaceus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 18, **40** |
| Little Bronze Cuckoo | *Chrysococcyx minutillus* | ✓ | | | | ✓ | Nil |
| Banded Bay Cuckoo | *Cacomantis sonneratii* | ✓ | ✓ | ✓ | ✓ | | 18, 129 |
| Plaintive Cuckoo | *Cacomantis merulinus* | ✓ | | ✓ | ✓ | ✓ | 129 |
| Rusty-breasted Cuckoo | *Cacomantis sepulcralis* | | | | ✓ | | 18 |
| Drongo Cuckoo | *Surniculus lugubris* | ✓ | ✓ | ✓ | ✓ | | Nil |

| Common Name | Scientific Name | 2015 | 2016 | 2017 | 2018 | 2019 | Pages |
|---|---|---|---|---|---|---|---|
| **Cuculidae** | | | | | | | |
| Malaysian Hawk-Cuckoo | *Hierococcyx fugax* | | ✓ | | | | 15 |
| Hodgson's Hawk-Cuckoo | *Hierococcyx nisicolor* | ✓ | | | | ✓ | 14, 15, 18 |
| Indian Cuckoo | *Cuculus micropterus* | | ✓ | | | | Nil |
| **Strigidae** | | | | | | | |
| Buffy Fish Owl | *Ketupa ketupu* | ✓ | | ✓ | | | 14, 15, 128 |
| Spotted Wood Owl | *Strix seloputo* | ✓ | ✓ | | ✓ | ✓ | 4, 5, 14, 126, 128 |
| **Caprimulgidae** | | | | | | | |
| Large-tailed Nightjar | *Caprimulgus macrurus* | | ✓ | ✓ | | | Nil |
| **Hemiprocnidae** | | | | | | | |
| Grey-rumped Treeswift | *Hemiprocne longipennis* | ✓ | ✓ | | | | 126 |
| **Coraciidae** | | | | | | | |
| **Oriental Dollarbird** | ***Eurystomus orientalis*** | ✓ | ✓ | ✓ | ✓ | ✓ | **42** |
| **Alcedinidae** | | | | | | | |
| **Stork-billed Kingfisher** | ***Pelargopsis capensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | **44**, 126, 128 |
| Ruddy Kingfisher | *Halcyon coromanda* | ✓ | | | | | 128 |
| **White-throated Kingfisher** | ***Halcyon smyrnensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 18, **46** |
| Black-capped Kingfisher | *Halcyon pileata* | | ✓ | | ✓ | | Nil |
| **Collared Kingfisher** | ***Todiramphus chloris*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 46, **48** |
| Blue-eared Kingfisher | *Alcedo meninting* | | | | | ✓ | 14, 131 |
| Common Kingfisher | *Alcedo atthis* | ✓ | | ✓ | ✓ | ✓ | 128 |
| **Meropidae** | | | | | | | |
| **Blue-tailed Bee-eater** | ***Merops philippinus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **50** |
| **Blue-throated Bee-eater** | ***Merops viridis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **52** |
| **Bucerotidae** | | | | | | | |
| **Oriental Pied Hornbill** | ***Anthracoceros albirostris*** | ✓ | ✓ | ✓ | ✓ | ✓ | 7, 8, 14, 19, **54**, 127, 130, 131 |
| Black Hornbill | *Anthracoceros malayanus* | | | | ✓ | | 19, 130 |
| **Megalaimidae** | | | | | | | |
| **Lineated Barbet** | ***Megalaima lineata*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **56** |
| Red-crowned Barbet | *Megalaima rafflesii* | | ✓ | | | | Nil |
| Coppersmith Barbet | *Megalaima haemacephala* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Picidae** | | | | | | | |
| **Sunda Pygmy Woodpecker** | ***Dendrocopos moluccensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **58** |
| Banded Woodpecker | *Chrysophlegma miniaceum* | ✓ | ✓ | ✓ | ✓ | ✓ | 128, 131 |
| Laced Woodpecker | *Picus vittatus* | ✓ | ✓ | ✓ | ✓ | ✓ | 19 |
| **Common Flameback** | ***Dinopium javanense*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, 58, **60** |
| Rufous Woodpecker | *Micropternus brachyurus* | ✓ | | ✓ | ✓ | ✓ | 127 |
| **Falconidae** | | | | | | | |
| Peregrine Falcon | *Falco peregrinus* | | | ✓ | | | Nil |
| **Cacatuidae** | | | | | | | |
| Tanimbar Corella | *Cacatua goffiniana* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Yellow-crested Cockatoo | *Cacatua sulphurea* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |



| Common Name | Scientific Name | 2015 | 2016 | 2017 | 2018 | 2019 | Pages |
|---|---|---|---|---|---|---|---|
| **Psittacidae** | | | | | | | |
| Blue-rumped Parrot | *Psittinus cyanurus* | | | | | ✓ | 14, 15 |
| Rose-ringed Parakeet | *Psittacula krameri* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Red-breasted Parakeet | *Psittacula alexandri* | ✓ | ✓ | ✓ | ✓ | ✓ | 19 |
| **Long-tailed Parakeet** | ***Psittacula longicauda*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **62**, 129, 131 |
| Coconut Lorikeet | *Trichoglossus haematodus* | ✓ | | ✓ | ✓ | | Nil |
| Blue-crowned Hanging Parrot | *Loriculus galgulus* | ✓ | ✓ | ✓ | ✓ | ✓ | 126 |
| **Pittidae** | | | | | | | |
| Blue-winged Pitta | *Pitta moluccensis* | | | | ✓ | | 130, 131 |
| Mangrove Pitta | *Pitta megarhyncha* | | ✓ | | | | 14, 130 |
| **Acanthizidae** | | | | | | | |
| Golden-bellied Gerygone | *Gerygone sulphurea* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Aegithinidae** | | | | | | | |
| **Common Iora** | ***Aegithina tiphia*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **64** |
| **Campephagidae** | | | | | | | |
| Pied Triller | *Lalage nigra* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Ashy Minivet | *Pericrocotus divaricatus* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Pachycephalidae** | | | | | | | |
| Mangrove Whistler | *Pachycephala cinerea* | ✓ | | | | | 14 |
| **Laniidae** | | | | | | | |
| **Tiger Shrike** | ***Lanius tigrinus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, **66**, 128 |
| **Brown Shrike** | ***Lanius cristatus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 19, 22, 66, **68**, 126 |
| Long-tailed Shrike | *Lanius schach* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Oriolidae** | | | | | | | |
| **Black-naped Oriole** | ***Oriolus chinensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 20, **70** |
| **Dicruridae** | | | | | | | |
| Crow-billed Drongo | *Dicrurus annectans* | | ✓ | ✓ | ✓ | ✓ | 127 |
| **Greater Racket-tailed Drongo** | ***Dicrurus paradiseus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 9, **72,** 131 |
| **Rhipiduridae** | | | | | | | |
| **Malaysian Pied Fantail** | ***Rhipidura javanica*** | ✓ | ✓ | ✓ | ✓ | ✓ | 9, **74** |
| **Monarchidae** | | | | | | | |
| **Asian Paradise Flycatcher** | ***Terpsiphone* sp.** | ✓ | ✓ | ✓ | ✓ | ✓ | 20, **76** |
| **Corvidae** | | | | | | | |
| **House Crow** | ***Corvus splendens*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 40, **78**, 80 |
| **Large-billed Crow** | ***Corvus macrorhynchos*** | ✓ | ✓ | ✓ | ✓ | ✓ | 20, **80** |
| **Pycnonotidae** | | | | | | | |
| **Straw-headed Bulbul** | ***Pycnonotus zeylanicus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 14, **82**, 130 |
| Black-headed Bulbul | *Pycnonotus atriceps* | | | ✓ | | | Nil |
| Black-crested Bulbul | *Pycnonotus flaviventris* | | ✓ | | | | Nil |
| Red-whiskered Bulbul | *Pycnonotus jocosus* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Sooty-headed Bulbul | *Pycnonotus aurigaster* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Yellow-vented Bulbul** | ***Pycnonotus goiavier*** | ✓ | ✓ | ✓ | ✓ | ✓ | 20, **84** |

| Common Name | Scientific Name | 2015 | 2016 | 2017 | 2018 | 2019 | Pages |
|---|---|---|---|---|---|---|---|
| **Pycnonotidae** | | | | | | | |
| **Olive-winged Bulbul** | ***Pycnonotus plumosus*** | ✓ | ✓ | ✓ | ✓ | ✓ | **86**, 126, 131 |
| Cream-vented Bulbul | *Pycnonotus simplex* | | | ✓ | ✓ | | Nil |
| Asian Red-eyed Bulbul | *Pycnonotus brunneus* | | ✓ | ✓ | | ✓ | 127, 130 |
| Cinereous Bulbul | *Hemixos cinereus* | ✓ | | | | | Nil |
| **Hirundinidae** | | | | | | | |
| Barn Swallow | *Hirundo rustica* | ✓ | ✓ | ✓ | ✓ | | Nil |
| Pacific Swallow | *Hirundo tahitica* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| Red-rumped Swallow | *Cecropis daurica* | | ✓ | | ✓ | ✓ | Nil |
| **Phylloscopidae** | | | | | | | |
| Yellow-browed Warbler | *Phylloscopus inornatus* | | ✓ | | | | Nil |
| **Arctic Warbler** | ***Phylloscopus borealis*** | ✓ | ✓ | ✓ | ✓ | ✓ | **88** |
| **Acrocephalidae** | | | | | | | |
| Oriental Reed Warbler | *Acrocephalus orientalis* | | ✓ | ✓ | ✓ | ✓ | 127 |
| Black-browed Reed Warbler | *Acrocephalus bistrigiceps* | | | | | ✓ | Nil |
| **Locustellidae** | | | | | | | |
| Pallas's Grasshopper Warbler | *Locustella certhiola* | | ✓ | ✓ | ✓ | ✓ | 129 |
| **Cisticolidae** | | | | | | | |
| Zitting Cisticola | *Cisticola juncidis* | | ✓ | | | | Nil |
| Yellow-bellied Prinia | *Prinia flaviventris* | ✓ | ✓ | ✓ | ✓ | ✓ | 21 |
| **Common Tailorbird** | ***Orthotomus sutorius*** | ✓ | ✓ | ✓ | ✓ | ✓ | 9, 21, **90** |
| Dark-necked Tailorbird | *Orthotomus atrogularis* | ✓ | ✓ | ✓ | ✓ | ✓ | 76 |
| Rufous-tailed Tailorbird | *Orthotomus sericeus* | ✓ | ✓ | ✓ | ✓ | | 21 |
| **Ashy Tailorbird** | ***Orthotomus ruficeps*** | ✓ | ✓ | ✓ | ✓ | ✓ | 9, 74, **92** |
| **Timaliidae** | | | | | | | |
| Chestnut-winged Babbler | *Stachyris erythroptera* | | | ✓ | | | Nil |
| **Pin-striped Tit-Babbler** | ***Macronus gularis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 76, **94** |
| **Pellorneidae** | | | | | | | |
| Abbott's Babbler | *Malacocincla abbotti* | | ✓ | ✓ | ✓ | ✓ | 130 |
| Short-tailed Babbler | *Malacocincla malaccensis* | | | ✓ | | | Nil |
| **Leiothrichidae** | | | | | | | |
| **White-crested Laughingthrush** | ***Garrulax leucolophus*** | ✓ | ✓ | ✓ | ✓ | ✓ | **96** |
| **Zosteropidae** | | | | | | | |
| **Swinhoe's White-eye** | ***Zosterops simplex*** | ✓ | ✓ | ✓ | ✓ | ✓ | 21, **98** |
| **Irenidae** | | | | | | | |
| Asian Fairy-bluebird | *Irena puella* | ✓ | ✓ | ✓ | ✓ | | 131 |
| **Sturnidae** | | | | | | | |
| **Asian Glossy Starling** | ***Aplonis panayensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 21, **100**, 108 |
| **Common Hill Myna** | ***Gracula religiosa*** | ✓ | ✓ | ✓ | ✓ | ✓ | 21, **102**, 131 |
| **Javan Myna** | ***Acridotheres javanicus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 21, 100, **104**, 106 |
| **Common Myna** | ***Acridotheres tristis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 21, **106** |
| **Daurian Starling** | ***Agropsar sturninus*** | ✓ | ✓ | ✓ | ✓ | ✓ | **108**, 128 |



| Common Name | Scientific Name | 2015 | 2016 | 2017 | 2018 | 2019 | Pages |
|---|---|---|---|---|---|---|---|
| **Turdidae** | | | | | | | |
| Eyebrowed Thrush | *Turdus obscurus* | ✓ | | | | | Nil |
| **Muscicapidae** | | | | | | | |
| **Oriental Magpie-Robin** | ***Copsychus saularis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 8, 9, 14, 21, **110**, 126, 128 |
| White-rumped Shama | *Copsychus malabaricus* | ✓ | ✓ | ✓ | ✓ | ✓ | 21, 130 |
| Dark-sided Flycatcher | *Muscicapa sibirica* | ✓ | | | | | Nil |
| **Asian Brown Flycatcher** | ***Muscicapa latirostris*** | ✓ | ✓ | ✓ | ✓ | ✓ | **112** |
| Brown-chested Jungle Flycatcher | *Cyornis brunneatus* | | | | ✓ | | 15, 21, 131 |
| Blue-and-white Flycatcher | *Cyanoptila cyanomelana* | | | | ✓ | ✓ | 15 |
| Siberian Blue Robin | *Larvivora cyane* | | | | ✓ | | 130 |
| Yellow-rumped Flycatcher | *Ficedula zanthopygia* | | | | ✓ | ✓ | 126, 129 |
| **Chloropseidae** | | | | | | | |
| Greater Green Leafbird | *Chloropsis sonnerati* | | ✓ | | | | 14 |
| Blue-winged Leafbird | *Chloropsis cochinchinensis* | | ✓ | ✓ | ✓ | | 126 |
| **Dicaeidae** | | | | | | | |
| Orange-bellied Flowerpecker | *Dicaeum trigonostigma* | ✓ | ✓ | ✓ | ✓ | ✓ | 20, 21, 126, 127, 128 |
| **Scarlet-backed Flowerpecker** | ***Dicaeum cruentatum*** | ✓ | ✓ | ✓ | ✓ | ✓ | 9, 21, **114** |
| **Nectariniidae** | | | | | | | |
| **Brown-throated Sunbird** | ***Anthreptes malacensis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 21, **116** |
| Van Hasselt's Sunbird | *Leptocoma brasiliana* | ✓ | ✓ | | | | Nil |
| Copper-throated Sunbird | *Leptocoma calcostetha* | ✓ | ✓ | ✓ | ✓ | ✓ | 18, 21 |
| **Olive-backed Sunbird** | ***Cinnyris jugularis*** | ✓ | ✓ | ✓ | ✓ | ✓ | 9, 16, 21, 116, **118** |
| Crimson Sunbird | *Aethopyga siparaja* | ✓ | ✓ | ✓ | ✓ | ✓ | 21, 131 |
| Little Spiderhunter | *Arachnothera longirostra* | ✓ | ✓ | | | | Nil |
| **Passeridae** | | | | | | | |
| **Eurasian Tree Sparrow** | ***Passer montanus*** | ✓ | ✓ | ✓ | ✓ | ✓ | 16, 21, **120** |
| **Ploceidae** | | | | | | | |
| Baya Weaver | *Ploceus philippinus* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |
| **Estrildidae** | | | | | | | |
| White-rumped Munia | *Lonchura striata* | | ✓ | | | | Nil |
| Javan Munia | *Lonchura leucogastroides* | | ✓ | | | | Nil |
| **Scaly-breasted Munia** | ***Lonchura punctulata*** | ✓ | ✓ | ✓ | ✓ | ✓ | 21, **122**, 126 |
| White-capped Munia | *Lonchura ferruginosa* | | | ✓ | | | Nil |
| Chestnut Munia | *Lonchura atricapilla* | ✓ | | ✓ | | | 126 |
| **Motacillidae** | | | | | | | |
| Forest Wagtail | *Dendronanthus indicus* | | | | ✓ | | Nil |
| Paddyfield Pipit | *Anthus rufulus* | ✓ | ✓ | ✓ | ✓ | ✓ | Nil |

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**Chestnut-winged Cuckoo.** *Photo credit: Ros Qian*

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