Melbourne Water Regional Bird Monitoring Project Annual Report 2023-24

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Front cover: White-necked Heron, Andrew Silcocks. Above: Royal and Yellow-billed Spoonbill, Andrew Silcocks.

Acknowledgements

We would like to thank the many unique individuals and organisations who exchanged their ideas, thoughts and energy to assist this project. Without their help this project would not have been possible.

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Additionally, we thank the land holders and managers who have provided us with access to restricted public land and private property,

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MWrbm Achievements

SURVEYS
1,488

1,252 wetland, 149 riparian and 87 estuary surveys

VOLUNTEERS
122

Individuals, friends groups and BirdLife coordinated group surveys

HOURS
5,117

Equivalent to over 213 days

LOCATIONS
151

90 wetland, 47 riparian and 14 estuary locations

SPECIES
226

Includes 33 threatened species, but excludes 11 taxa

RECORDS
56,484

Total of 763,551 birds counted across the MWrbm

*Western Port Survey excluded from statistics

Overview

BirdLife Australia is the nation's largest bird conservation charity, with hundreds of thousands of supporters, active members and enthusiastic volunteers embedded within a proud history dating to its founding in 1901. BirdLife Australia's mission is to prevent bird extinctions and reverse declines through fighting to preserve ecosystems, advocating for stronger nature laws, engaging public interest in birds and field-based work such as nest box installation, floating shorebird roosts and population monitoring.

The latter, monitoring, provides vital information about species and population trends which can inform decision making and threatened species listings. Effective bird monitoring requires standardised methods, long-term commitment, and competent identification skills from experienced observers. Without monitoring data, particularly long-term data, we can only answer questions with guesses and not science.

With Melbourne Water's long-term commitment to the *Healthy Waterways Strategy (2018),* a strategy with a 50-year vision to enhance environmental values within the Port Phillip and Western Port Catchment region, long-term collection of data is critical for measuring success.

BirdLife Australia has been at the forefront of providing data and efforts to monitor this region, beginning with the first commissioned contract in 2012. This project – the Melbourne Water regional bird monitoring (MWrbm) project - built upon the foundations of earlier efforts from volunteers monitoring key wetlands of biodiversity significance and constructed wetlands in the Dandenong Catchment.

Today, this project funds 55 wetlands, 50 riparian sites and 14 estuary surveys. Beyond the scope of the contract, a further 35 wetlands have been continuously monitored by volunteers as part of the legacy of previous contracts with differing priorities.

Image above: Eastern Treatment Plant – Ryan Kilgower

Long-term Goals

Wetlands

Bird data collected during the 2023/2024 year will contribute to calculations of the Wetland Bird Index developed by Melbourne Water (2020). The Wetland Bird Index is a useful measure for providing wetland bird community trend estimates at the wetland spatial scale and over temporal scales and can provide an early indication of a declining wetland bird community and important information for wetland managers. This index provides Melbourne Water with a toolkit to track the condition of wetland bird communities over time using bird data. By dividing the bird data into five-year time blocks, the indices calculated for each block can provide an indication of whether bird communities are increasing, stable, or declining from one block to the next (BirdLife Australia 2020a and 2022a).

The Summed Reporting Rate calculated for the wetland bird species is the Basic Score that reflects species richness and implies a measure of abundance. The Summed Reporting Rate is further informed by the categorical 'weightings' provided for the numbers of breeding and listed species recorded at a site during each time block. The different index components can also provide an indication of any change in the wetland bird community at each site which occur because of any changes in the availability of wetland bird resources. The indices enable Melbourne Water to investigate the cause of change to indices, especially if the indices indicate a detrimental change. The index can also potentially be used to evaluate the effectiveness of Melbourne Water's works at sites (BirdLife Australia 2020a and 2022a).

For past evaluations of the Wetland Bird Index (BirdLife Australia 2020a, 2022a; and unpubl.), selected wetland bird survey data have been divided into four-time blocks based on the reporting of progress following the investment outlined in Melbourne Water's Healthy Waterways Strategy:

- Block 4 - Post the 2018 Healthy Waterways Strategy - 2018/2019 to 2022/2023;
- Block 3 - Period of the 2013 Healthy Waterways Strategy - 2013/2014 to 2017/2018;
- Block 2 - Pre-Healthy Waterways Strategy - 2008/2009 to 2012/2013; and
- Block 1 - Earlier for wetlands which have sufficient data - 2003/2004 to 2007/2008 (coinciding with the latter stages of the Millennium Drought).

Therefore, the survey data collected for 2023/2024 represent the first year of Block 5.

Estuaries

The Victorian Department of Energy, Environment and Climate Action (DEECA) has developed an Index of Estuarine Condition Score (IEC) which is comprised of five subindices - Physical Form, Hydrology, Water Quality, Flora, and Fish. The overall score for each estuary is based on individual scores for the five sub-indices. Sub-indices comprise one or more measures that, in turn, are underpinned by one or more metrics that provide information on threats or condition (DELWP 2021a). Assigning each IEC metric to represent measures of either threat or condition assists with interpretation of results and conceptual understanding of observed estuary condition to guide management options.

Melbourne Water and DEECA are interested to determine if the bird data collected along the 14 estuaries during the past two years can be used to develop a bird subindex. Data collected during 2023/2024 will contribute to this evaluation.

Riparian Sites

Melbourne Water has established a number of long-term monitoring sites covering a number of treatments to evaluate the effects of Willow (Salix spp.) removal and revegetation on bird communities along the Plenty River/Arthurs Creek/Running Creek, north of Melbourne, and along Olinda Creek to the east. More recently, Melbourne Water and Melbourne University have set-up long-term 'paired' botanical and bird monitoring sites to evaluate the effects of weed removal and revegetation on botanical and bird communities. Bird data collected at these sites during 2023/2024 will be used with data collected during other years to assist in these evaluations.

Image credit: Little Pied Cormorant - Ryan Kilgower

Climate

Rainfall

Rainfall varies throughout the Port Phillip and Western Port Catchment Management Area (PPWPCMA) with the west typically much drier than the east. Figure 2 demonstrates this variation in the Annual Mean Rainfall from several weather stations spread across the PPWPCMA, with annual means varying from 535.4 mm and 477.7 mm at Laverton and Melton Reservoir, respectively, to 882.1 mm at Croydon (Dorset Golf Course) and 785.1 mm at Koo Wee Rup. Bonbeach weather Station near Edithvale-Seaford Wetlands Ramsar Site receives 697.6 mm annually, while Toorourrong Reservoir north of Whittlesea has an Annual Mean Rainfall of 787.5 mm. The weather station at Toolangi (Mount St Leonard DPI) in the Yarra Ranges National Park is used as an example of the higher rainfall experienced in the Yarra Ranges and Dandenong Ranges. Toolangi receives an Annual Mean Rainfall of 1358.1 mm.

For 2023/2024, the pattern of rainfall received across the PPWPCMA, as recorded for Bonbeach, Laverton, Melton Reservoir, Whittlesea, Croydon and Toolangi, was generally similar. The following patterns were noted:

- Winter rainfall for July and August 2023 was 40-63% of the long-term means (i.e. 34-53% and 47-73% of the long-term means, respectively);
- Spring rainfall was 55-82% of the long-term means from September to November 2023, resulting from well below average rainfall in September, close to average or well above average rainfall in October and close to average or well below average rainfall in November 2023 (12-47%, 93-141% and 56-94% of the long-term means, respectively);
- Summer rainfall total for the months of December 2023 to February 2024 was above average (i.e. 129-157% of the long-term means), with a high rainfall in December (83-229% of the long-term means), a very wet January (163-300% of the long-term means) and a very dry February (14-49% of the long-term means);
- Autumn 2024 rainfall was 76-101% of the long-term means with extremely low rainfall for March (5-15% of long-term means), very high rainfall for April (176-227% of the long-term means) and a dry May (38-78% of the long-term means); and
- Winter 2024 started with a very dry to dry June 2024 with rainfall for being 17-74% of the long-term means.

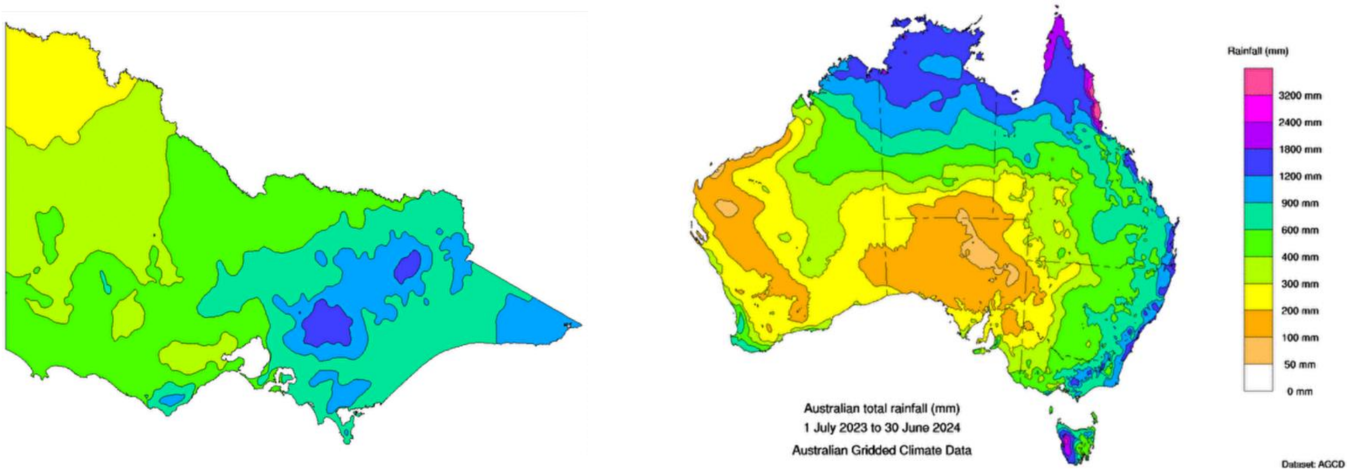


Figure 1: Total accumulative rainfall over the reporting period – Victoria (left), Australia (right)

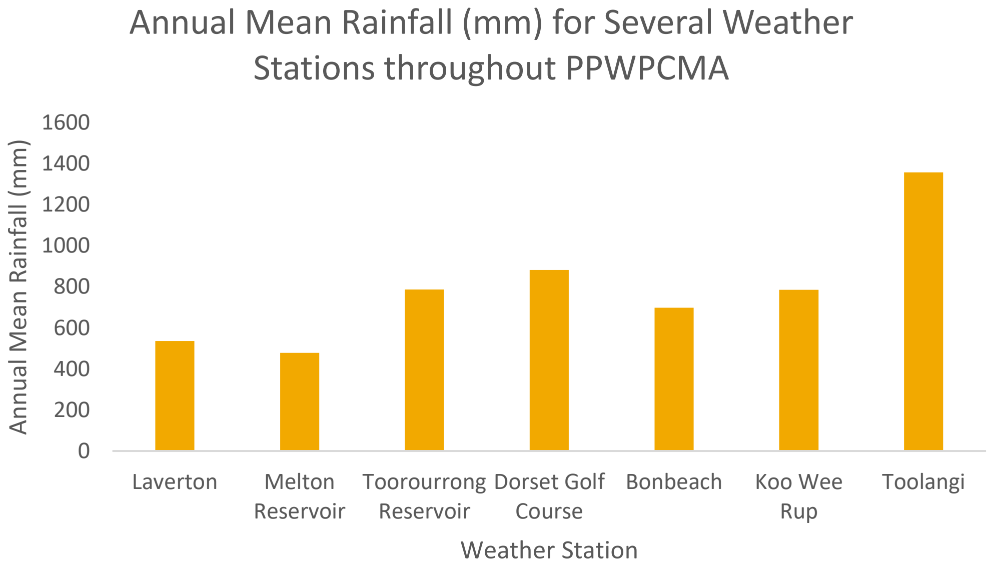


Figure 2. Annual Mean Rainfall (mm) for several weather stations in the Port Phillip and Western Port Catchment Management Area.

Climatic variability on a local, regional and continental scale

The erratic distribution, abundance, movements and survival of Australian waterbirds reflect local, regional and continental wetland availability. The ecology of waterbirds is related to the spatial and temporal availability of wetlands and associated food resources and ultimately the vagaries of rainfall and filling of ephemeral wetlands in arid Australia (Frith 1959; Marchant and Higgins 1990; Scott 1997; Kingsford and Norman 2002; Roshier et al. 2002; DEPI 2014; Clarke et al. 2015; Wen et al. 2016; Melbourne Water 2017; BirdLife Australia 2019b, 2020b, 2021a, 2021b, 2022a, 2022b, 2023a and 2023b; DELWP 2021; Loyn et al. 2023). Consequently, numbers of waterbirds at wetlands in the PPWPCMA are expected to fluctuate depending on climatic variability on a local, regional and continental scale. Coastal wetlands function as drought refuges when conditions inland are dry (DELWP 2018 and 2019), and waterbird abundances at coastal wetlands have been linked to the wetness of the Murray Darling Basin (e.g. DELWP 2018 and 2019; BirdLife Australia 2023a and 2023b). Given that there was a return to dry conditions in the Murray Darling Basin during 2023, with a rainfall deficit of 93 mm, only a moderate 29 mm of rainfall above the average during the first six months of 2024, and higher than average temperatures during 2023/2024 (Bureau of Meteorology 2024a and 2024b), it can be expected that higher abundances of waterbirds may have been recorded during the 2023/2024 period.

Temperatures

Monthly Mean Maximum and Minimum Temperatures for Melbourne Airport and Toolangi are shown in Figure 3. Temperatures vary less across the PPWPCMA than rainfall, therefore, these two stations represent the extremes. For example, Monthly Mean Maximum and Minimum Temperatures for Melbourne Airport, Laverton, Melton Reservoir, Croydon and Bonbeach generally vary by less than 1^{o}C. In contrast, Monthly Mean Maximum and Minimum Temperatures for Melbourne Airport and Toolangi vary by 3.8-4.8^{o}C and 1.5-3.0^{o}C, respectively.

Monthly Mean Maximum Temperatures for Melbourne Airport (for 1970 to 2023) vary from 13.2^{o}C in July to 26.6^{o}C in January and February. Monthly Mean Minimum Temperatures for Melbourne Airport vary from 5.5^{o}C in July to 14.1^{o}C in January and February. Monthly Mean Maximum and Minimum Temperatures for Toolangi (Mt St Leonard DPI) (for 1953 to 2006) vary from 8.6^{o}C in July to 26.6^{o}C in January and February. Monthly Mean Minimum Temperatures for Melbourne Airport vary from 3.8^{o}C in July to 11.8^{o}C in January and February.

Figure 4 shows the difference between the Monthly Mean Maximum and Minimum Temperatures recorded for 2023/2024 with the Long-term Means for Melbourne Airport. Maximum Temperatures recorded for 2023/2024 were as high as 3.8^{o}C above the Long-term Average during September 2023 to as low as -1.4^{o}C below the Long-term Mean in April 2024. Minimum Temperatures recorded for 2023/2024 were as high as 1.9^{o}C above the Long-term Average during November 2023 to as low as -1.8^{o}C below the Long-term Mean in June 2024.

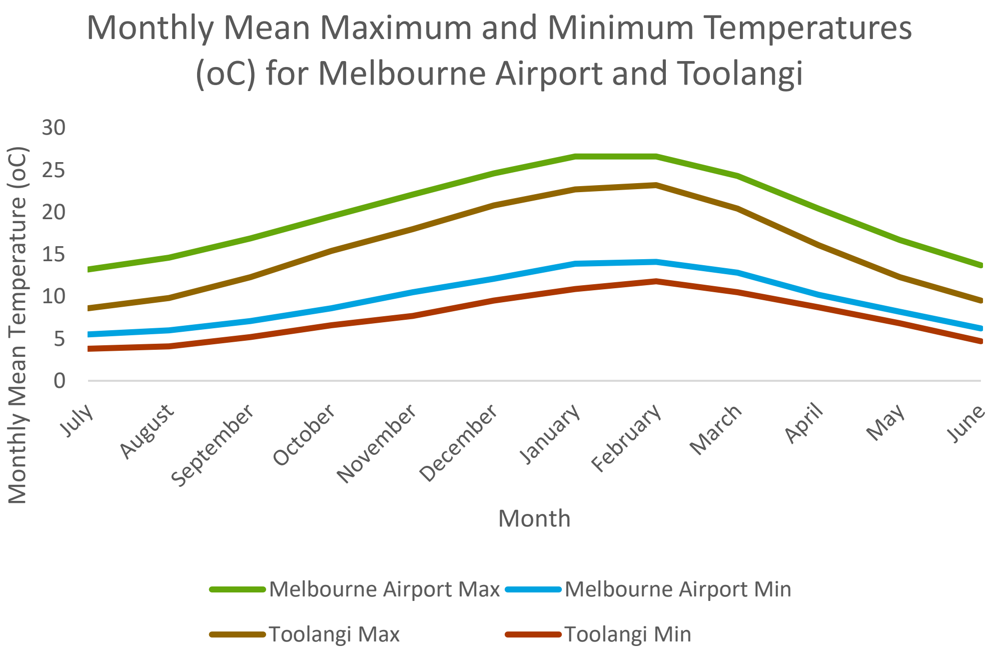


Figure 3. Monthly Mean Maximum and Minimum Temperatutes for Melbourne Airport (for 1970 to 2023 and Toolangi (for 1953 to 2006).

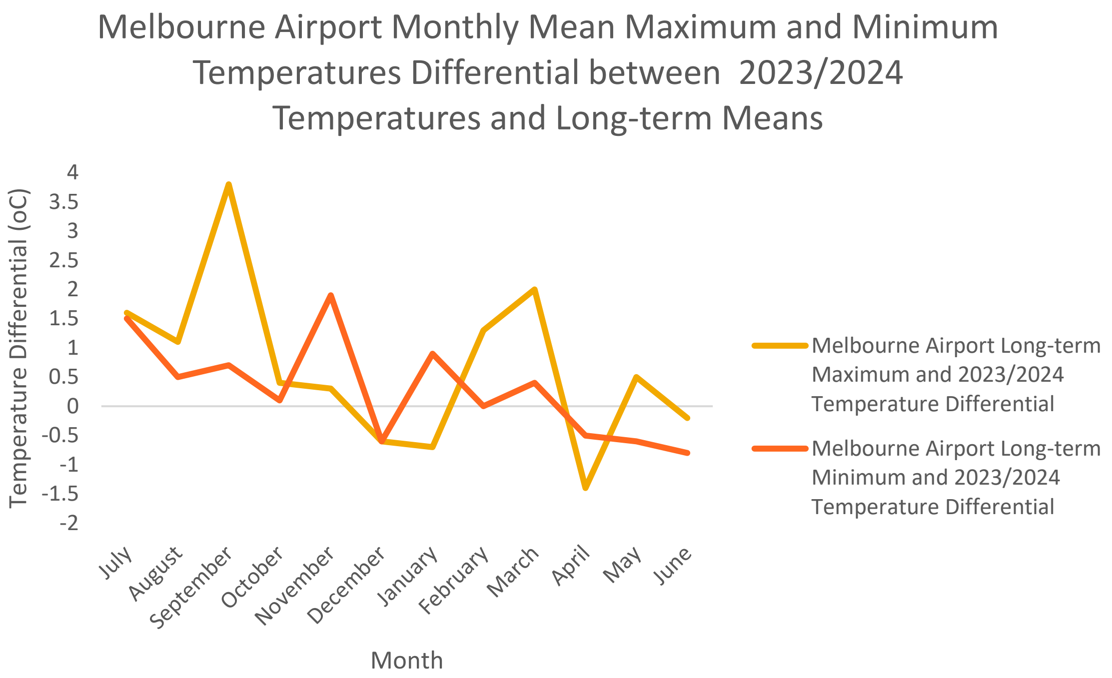


Figure 4. Difference between the Long-term Monthly Mean Maximum and Minimum Temperatutes and those recorded during 2023/2024 for Melbourne Airport.

Survey Methodology

Site Identification

The MWrbm project comprises of surveys across three parts: estuaries, riparian sites, and wetlands. Locations for these were identified through the Melbourne Water GIS Spatial Layer and were restricted to the Port Phillip and Western Port management region.

Wetlands for the project were selected at Melbourne Water's discretion following a review from their science panel. The selected 55 wetlands were founded from an initial list of 250 wetlands deemed as *priority wetlands*. These wetlands are prioritised for management action under the *Healthy Waterways Strategy (2018).* Further wetland sites have been added to this report that had been part of previous contracts and have continued monitoring efforts.

Estuaries were also selected by Melbourne Water at a total of 14, with BirdLife Australia given leeway to select alternate sites where access was deemed too difficult. As a result, Warringine Creek Estuary was switched out in favour for Mordialloc Creek Estuary. As estuaries were restricted to twenty sites comprising of 200 x 100 metres in addition to the waterway itself, larger estuaries were surveyed across more convenient locations for access.

Selection of riparian sites differed, with the inclusion of sites relating to willow removal projects and replanting efforts in the MWrbm. Long-term MWrbm monitoring sites in Melbourne's outer suburbs and Mornington Peninsula were included along with sites relating to the Restoration Outcomes Monitoring Protocol (ROMP) involving Melbourne Water, The University of Melbourne and consultancy Water Technology (Jellinek, 2021). Riparian locations typically included a pair of works and control sites to monitor the effectiveness of the willow treatments, weed removals or restoration efforts.

Survey Method

Wetlands

Three methods were implemented to survey wetlands on a monthly basis. These three methods include:

- Small Area searches for at least 20 min within 500 m of a central point (Type 2 survey). This is the preferred method to survey small to medium sized wetlands.
- Large Area searches for at least 20 min within 5 km of a central point (Type 3 survey). This is the preferred method for large waterbodies such as the Eastern Treatment Plant.
- Fixed route surveys for at least 20 min within 5 km of a central point (Type 5 survey). This is the preferred method when a specific route is replicated for each survey.

Exceptions were made to time limits for surveys of ponds at the Western Treatment Plant. A minimum of 10 minutes applied.

Observers typically detected birds on foot or from a vehicle, often with the aid of optical equipment such as binoculars or spotting scope. All birds which were confidently heard and could be identified were to be recorded to the survey, even if the bird was not physically sighted. Thus, surveys are a collection of birds both seen and heard. There were restrictions to this however, with birds only being recorded on a wetland or within a 50-metre buffer of a wetland's edge where applicable. These included birds flying low overhead and deemed to be 'using the site'. Transiting birds were not to be recorded, however incidental records were encouraged.

In the field, observers were strictly encouraged to survey during daylight hours, preferentially during the morning when bird activity peaks. Observers, whether employed or volunteering, followed the *BirdLife Australia Ethical Birdwatching Guidelines (2024)*.

Observers who recorded surveys for the MWrbm uploaded their surveys to Birdata, BirdLife Australia's citizen science database which hosts over 25 million records across Australia and counting. Observers had three choices to upload this data; through using the mobile app that is available on modern phones, through the web browser which is accessible from a desktop or through paper or online spreadsheet-based forms which could be sent through to a BirdLife Australia staff member to add to the database.

Image credit above: Ryan Kilgower

Estuaries

Estuaries were surveyed monthly for a period of six months, typically between the period of October to April. The design of these surveys for the MWrbm was modelled on the methods of Hansen and Menkhorst (2014).

Estuary surveys followed a defined estuary route with surveys were conducted in sections of 200 metres by 50 metres either side of the centre point of the stream, thus creating a two-hectare area. These transect sections may be sequential or broken into smaller parts and for this project they were capped at 20 sections per estuary. All birds were to be counted within these sections for a period of 15 minutes either by foot or boat, with some exceptions made where impractical to do so.

All species were recorded using the fixed route survey methodology (Type 5), and like the wetland surveys, all species were recorded and surveys uploaded to Birdata. Estuary surveys were completed by BirdLife Australia employed staff with assistance from Mornington Boat Hire where a boat was hired to navigate several estuaries including Watsons, Bass and Werribee.

Riparian

Riparian sites were surveyed by BirdLife Australia staff four times annually and followed the 2-hectare 20-minute method (Type 1) that was developed by Richard Loyn (1986). These surveys were conducted on foot, and alike riparian and wetland surveys, recorded all species seen and heard within the defined location.

As several sites were surveyed on private property, a system was in place to notify landholders before a visit and where applicable a Melbourne Water contact, typically the Waterways and Land Officer of that particular region.

Image credit above: Ryan Kilgower

Survey Data Limitations

Limitations to the survey data have been identified in previous editions of the MWrbm report. Limitations include the difficulty in determining whether the total number of individuals of a species present at a site is counted or detected. Detection of cryptic species such as crakes which require special techniques for survey (e.g. call playback, night-time listening and remote camera surveys) was expected to be low. Melbourne Water has commissioned several studies into the distribution and habitat management of cryptic species (e.g. DSE 2003, 2004, 2006; Ecology Australia 2006a, 2007a, 2007b, 2008a, 2008b and 2012; McNabb and Greenwood 2011; McNabb and McNabb 2011; Ninox Pursuits 2013, 2015; McNabb et al. 2017, Schmidt et al. 2018).

It was concluded that the methods used in this project represent a standardised replicable approach, and are the best methods currently known to provide a comprehensive inventory of species presence. Furthermore, the count information should be interpreted as comparable, relative information rather than as a definitive total numbers present.

Data Management

Vetting of Data

Surveys conducted by volunteers and staff were entered into a single database that is managed by BirdLife Australia called Birdata. Birdata is a freely accessible website and is open to anyone to sign up to an account and upload their sightings.

Observers are typically well experienced and competent with bird identification; however, misidentifications may arise for a variety of reasons such as having trouble with using technology. As a result of these challenges, there are systems in place to vet the data meticulously to ensure accuracy.

Firstly, sightings of species considered outside of their typical range or population numbers are flagged as 'queried'. This requires a person to manually check the sighting and verify whether they believe it is accurate or not. If it is deemed likely to be true, the observation that was flagged becomes 'accepted', whilst a false observation becomes 'rejected'. Additionally, some true records may be 'rejected' on the basis the species is not part of a wild, self-sustained population, and escaped pets are accepted only as 'presumed escapee'.

Whilst these systems are robust, they are prone to mistakes on the rare occasion, and data that is not flagged may be left unchecked with a chance that they are inaccurate. This may particularly be the case for common species which appear alike such as Chestnut and Grey Teal, although MWrbm volunteers are expected to be competent with identification, so this is unlikely to be an issue with the data presented in this report. Whilst the best effort has been undertaken to vet the data, and data vetting for the Port Phillip and Western Port region was carried out by BirdLife Australia staff members, we cannot guarantee that every record is accurate, but we can be confident that >99% records are free from error.

Surveys

Surveys for riparian and estuarine locations were conducted by BirdLife Australia staff and were extracted with the assumption of containing accurate data. Wetland surveys, which were completed by volunteers and staff, were meticulously managed for this project and were required to fit within specific parameters for inclusion. Several surveys were excluded for analysis based on the following reasons:

- Conducted outside of daylight hours.
- Were shorter than 20 minutes in length unless there were specified reasons to include those surveys.
- Surveys that were not types 2, 3 or 5 where applicable unless a specific exemption applied.
- Surveys that were deemed to demonstrate little effort in surveying an entire wetland as claimed.

Data for wetlands was extracted in early October 2024 with the timeline parameters set as the 23-24 financial year. Location data was extracted with assistance of GIS polygons provided by Melbourne Water. A small buffer around wetlands was applied in Arc GIS Pro to ensure that all survey points were added, as some polygons in the layer may have contained inaccuracies, or didn't reflect changes such as developments in peri-urban and rural regions where wetlands have been altered to serve a new purpose or land use.

Volunteer Contribution

The continuing collection of bird survey data for the MWrbm project has been made possible thanks to the ongoing support of volunteer contributors, many of which are actively linked to several local branches including BirdLife Melbourne, BirdLife Bayside, BirdLife Yarra Valley, BirdLife Mornington Peninsula and BirdLife Bass Coast. Our volunteers are experienced bird identification experts and contribute data to this project that is invaluable and trusted. Their ongoing support is cherished, and their commitments go beyond the field and into the coordination of group surveys.

The commitment made towards repeated surveys ensures that Melbourne Water has uninterrupted, continuous data over the course of the MWrbm. Many sites have been surveyed by the same volunteers who have a deep passion for their local wetlands. Unfortunately, time does catch up and there has been several departures and volunteers passing on.

Special mention to Ken Harris who has been coordinating monthly surveys at the Western Treatment Plant and Dandenong Valley Wetland (also known as Rigby's Wetland) since the MWrbm's beginnings and has chosen to retire. Additionally, to Mike Carter who sadly passed away late last year, who had been involved with surveying Melbourne Water's Eastern Treatment Plant since the 1980s. Both volunteers have been instrumental in collecting data at Melbourne Water's most important sites of biodiversity and their legacy continues with teams of volunteers surveying both treatment plants monthly under the same design.

Lastly, the Western Port project recently joined the MWrbm banner following the amalgamation of the Port Phillip Western Port CMA and Melbourne Water. This project has been running for over 50 years, with a large volunteer base of experienced birders which should be appreciated and significant data that informs Western Port's Ramsar listing.

All of these examples are proof that volunteers are important contributors to bird monitoring efforts and should continue to be part of the MWrbm project.

Image credits: Alison Ray (left) and Darren Quin (right)

Occupational Health and Safety

During the course of the 2023-24 monitoring period, OH&S documents such as task risk assessments and volunteer registration forms which had been developed in previous years were implemented with amendments to reflect learnings and changes over the course of this project. OH&S documents are regularly reviewed by GHD and Melbourne Water. The OH&S co-ordinator for BirdLife Australia also regularly reviews these documents.

All participants in the MWrbm project are required to carefully read over several of these documents and provide a signature once they agree to the conditions. Some participants who have been granted special access to locations such as the Eastern Treatment Plant are required to fill out additional forms and undertake training.

GHD have audited BirdLife Australia's procedures on several occasions during the monitoring period to assess adherence to BirdLife Australia's commitment to safety. These have been undertaken in particularly high-risk settings such as estuarine boat surveys and coordinated treatment plant monitoring.

There were no OHS issues reported from volunteers for any of the bird surveys during the monitoring period.

Species

Taxonomy

This project follows the taxonomy that is governed by BirdLife Australia's Research and Conservation Committee; the Working List of Australian Birds Version 4.3. This is the most updated version of BirdLife Australia's taxonomic list and is comprehensive, including taxa other than species such as domesticated birds, spuhs and slashes which were recorded during this project. Those additional taxa were added to the list of species sighted (Table 2) but are marked appropriately to recognise that they are not considered full species in their own right. To reiterate, these additional taxa are:

- Teal spp
- Crow & Raven spp
- Domestic Goose
- Domestic Duck (includes Mallard)
- Corella spp
- Muscovy Duck
- Domestic (Greylag) Goose
- Black Duck-Mallard hybrid
- Duck spp
- Small grebe spp
- Brown Goshawk/Collared Sparrowhawk spp

Contrary to BirdLife Australia's working list, the species of Northern Mallard was excluded and lumped with Domestic Duck following growing consensus amongst the birdwatching community and researchers that Northern Mallards found in the wild in Australia are of domestic origin (Lavretsky et al. 2023). Furthermore, there is no evidence to support a free flying, viable population in Victoria or Australia's mainland from the available data.

Following the separation of these non-species, it was determined that across the 23-24 financial year, 278 species were sighted across the Port Phillip and Western Port CMA and recorded in Birdata. Of those 278, a proportion of 81.3% or 226 species, were recorded along wetlands, estuaries, and riparian sites under the MWrbm. This count however excludes the Western Port survey, due to its separate 50-year history, location, and survey design.

Introduced Species

From the 226 species recorded, there were 12 introduced species. Eleven of those species are foreign to Australia, with histories of introduction that date to the 19th and 20th centuries (Long 1981). Scaly-breasted Lorikeet were introduced from northern Australia and formed a viable population in Melbourne as a product of aviary escapees. These species have had varying degrees of success, and some have becoming menacing as major pests such as Common Myna which has become the focus of several eradication efforts (Diquelou 2017; Feare et al. 2021; Grarock et al. 2014)

The proliferation of several of these introduced species is reflected in the statistics of the MWrbm. Amongst estuaries, several of these species displace native birds as most common, with Common Blackbird (6th), Common Starling (7th), Spotted Dove (8th) and Common Myna (11th) all making the top 11 most reported species. However, this does not reflect across riparian surveys, which is unexpected considering numerous sites are degraded, consist of introduced flora or are on farmland with conducive habitat for these species. Common Blackbird was recorded as more prolific (3rd), yet Common Myna (17th), Common Starling (22nd) and Spotted Dove (26th) slide down the rankings. This signifies the influence of several well vegetated landscapes with available fresh water that provide better habitat for certain native species such as Grey Fantail to thrive. It was noted that all estuarine and many riparian locations had been influenced by anthropogenic land uses such as farming, industrial complexes, residential areas, recreation or sewage treatment facilities.

While many of these introduced species were common, the data highlights that several are struggling or not using certain habitat types covered by the MWrbm. Scaly-breasted Lorikeet was detected the fewest of all introduced species at 0.32% for wetland surveys, and not recorded elsewhere. Furthermore, Eurasian Tree Sparrow was recorded at 1.20% for wetlands, with Song Thrush being reported at a higher rate than the CMA average with wetlands (1.61%) and riparian sites (2.01%).

In fact, all introduced species had a reporting rate for wetland surveys above their regional average, indicating that wetlands within the MWrbm may be key strongholds for these species and important for less common ones to survive. Indications from high counts of these 12 species suggest that the Eastern Treatment Plant (5), Newell's Paddock (2) and Deans Marsh (2), provide the greatest strongholds for introduced species proliferation. Newell's Paddock and Deans Marsh are of greatest interest as both sites are not within the top 20 for the project's highest overall maximum accumulative population or species counts. They perhaps reflect surrounding land uses or neglect and focus on those sites to promote native bird species should be a priority, particularly amongst the wetland surrounds where native terrestrial birds should be thriving.

International Migratory Species

Seventeen international migratory species were recorded during the MWrbm, from a mix of shorebirds, terns and swifts (DCCEEW 2024a). Most species were recorded at only a few key locations. Reporting rates for estuaries were <1% for all except Red-necked Stint (1.52%). Latham's Snipe was the only internationally migratory species recorded during riparian surveys, and for wetlands, this species was the most common at 6.58%, just above the Sharp-tailed Sandpiper with a reporting rate of 6.26%.

Reporting rates for these species are typically lower due to their lack of presence during parts of the year, typically winter, although this is species dependent given the example of Double-banded Plover which overwinters in Australia away from their breeding grounds in New Zealand (DCCEEW 2024a).

Some of the most impressive records for these species were from Melbourne's two major treatment plants – the Western Treatment Plant (WTP) and Eastern Treatment Plant (ETP). At the WTP, 238 critically endangered Curlew Sandpiper were recorded during a survey of T-section. At the ETP, an incredible count of 2,203 Sharp-tailed Sandpiper was sighted by the team of volunteers during the December 2023 survey. This capped impressive counts of this species at multiple wetlands such as Banyan Waterhole (1055), Seaford

Wetlands (991), WTP – T-Section (715) with figures close to or above 1% of East Asian Australasian Flyway population estimates (Hansen et al. 2022).

While these figures were impressive, several other species were recently added to the national threatened species list, typically attributed to loss of habitat across staging grounds along the East Asian Australasian Flyway and were recorded with less than impressive numbers (DCCEEW 2024b).

Common Greenshank were recorded for both estuaries and wetlands, yet the highest count was 9 individuals. A solitary Bar-tailed Godwit accompanied 8 Black-tailed Godwit at the Western Treatment Plant on several occasions, and both have typically been considered common migratory birds to the Port Phillip and Western Port region according to the data. These declines are concerning, particularly when there is ample appropriate habitat for those species to thrive in the region.

On another note, both migratory swifts made a passing appearance, with records of White-throated Needletail and Fork-tailed Swift at a select few sites.

Image credit above: Red-necked Stint – Ryan Kilgower

Threatened Species

Threatened listings have dynamically changed throughout the MWrbm project, with several species being added, whilst similarly, several being delisted. During this reporting period alone, eight shorebird species were added to the federal threatened species list, some of which are yet to be reviewed for state level listing (DCCEEW 2024b). Conversely, Hardhead was removed from Victoria's list following a submission from the Sporting Shooters Association of Australia (SSAA 2024)

Across the MWrbm, 30 state listed species in addition to a further 3 species listed federally were recorded. 12 species were migratory birds and 21 resident or locally migratory species. 25 species were defined as waterbirds.

Three of the threatened waterbird species were recorded at >10% reporting rate across MWrbm wetlands, suggesting that the Port Phillip Western Port Region may be a significant stronghold for them. Blue-billed Duck (11.16%), Australasian Shoveler (13.64%) and Great Egret (25.20%) were the trio. All three are listed as vulnerable at the state level, and not listed at the federal level.

Interestingly, breeding records for Blue-billed Duck were observed at several locations including Coolart Lagoon, Tanunda Wetlands, and the Ramsar and Key Biodiversity Area (KBA) listed Edithvale Seaford Wetlands. Within the Carrum KBA of that latter sighting, 204 birds were observed at the Eastern Treatment Plant during the December survey, >1% of the world population (Cull, Newman & Plew 2021). That couples with aforementioned records of Sharp-tailed Sandpiper in that KBA >1% of the flyway population estimates (Hansen et al 2022).

On the lower end, the iconic species of Australasian Bittern was encouragingly recorded at several locations across the MWrbm, with a wetland reporting rate of >1%, and was even observed during an estuary survey of Chinamans Creek. Only three threatened species were recorded across estuaries, wetlands and riparian locations: Little Eagle, Blue-winged Parrot and Latham's Snipe.

Waterbird Species

For this assessment, waterbird species are defined following DELWP (2019) with the inclusion of several species listed below because of their use of wetland habitats:

- Azure Kingfisher (Ceyx azureus);
- Little Grassbird (Poodytes gramineus);
- Tawny Grassbird (Cincloramphus timoriensis);
- Australian Reed-warbler (Acrocephalus australis);
- Golden-headed Cisticola (Cisticola exilis);
- White-fronted Chat (Epthianura albifrons);
- Swamp Harrier (Circus approximans);
- White-bellied Sea-Eagle (Haliaeetus leucogaster)

A total of 88 waterbird species were recorded during this reporting period. Pacific Black Duck was the most reported waterbird species across wetlands (80.10%) and riparian sites (17.45%), whilst along estuary transects, Little Pied Cormorant (23.86%) was the most reported species.

Highest counts for species typically concentrated around well-known areas of significant biodiversity such as the Western Treatment Plant, Eastern Treatment Plant, Edithvale Wetland, Seaford Wetland and Cheetham. Maximum counts such as Eurasian Coot (19,062), Australian Shelduck (4,300) and Chestnut Teal (3254) highlight the importance of these locations and continuous management for waterbird biodiversity.

Several sites produced interesting counts of waterbird species and may warrant further focus, as these waterbirds dominated and could be problematic for efforts to enhance biodiversity, undermining the objectives of the *Healthy Waterways Strategy (2018)*. Australian White Ibis (1,232 – Jells Park) and Silver Gull (1,200 – Chinamans Estuary) were the counts in question.

Two vagrant waterbird species were recorded; Tawny Grassbird (Police Road Retarding Basin and Seaford Wetlands) and Wandering Whistling Duck (Tootgarook Swamp). Both species have similar ranges across South-East Asia and Eastern Australia. Sightings of both may indicate a range expansion brought about by changing climate. With rising average temperatures already surpassing 1.5C since 1910 (Grose et al. 2023), waterbird species such as these two may become common and proliferate in the region in the recent future.

Species Table

Table 1: The following table represents the meaning behind each heading on Table 2.

Heading	Definition
Species & Latin Name	As defined by the Working List of Australian Birds Version 4.3
Code	The four-letter code, also known as bird codes or alpha code, assigned to each species based on common name. Some have been altered slightly for identification between two species with the same code.
Waterbird	As defined by DELWP (2019) in addition to species listed under section 'waterbird species'.
Status	One of nine status' were given to a species. These were created for simple identification of a species' nature. They are: • Domestic: domesticated birds. Not considered a full species in this report's analysis. • Hybrid: offspring of two species that have hybridised. • Introduced: species that were released into the region by humans and have established. • Migratory Shorebird/Tern/Swift: Birds that make an annual migration across international borders. • Native: Species present year-round in Australia and/or New Guinea. May include local migrants and nomadic birds. • Spuh: An option for birders who cannot identify a bird to a species level. • Vagrant Native: A bird that is native to Australia, but not usually present in Victoria. A rare bird that has appeared on its own volition.
Threatened Status (FFG)	The threatened status of a species based on Victoria's Flora and Fauna Guarantee Act. Additionally includes several species that were recently listed at the federal level but have not yet been reviewed for listing under FFG.
Reporting Rate (PPWP)	Number of records of a species divided by all surveys. For the Port Phillip and Western Port Catchment Region.
Reporting Rate (Est)	Number of records of a species divided by all surveys. Estuary surveys (based on transects, not complete surveys).
Reporting Rate (Rip)	Number of records of a species divided by all surveys. Riparian surveys.
Reporting Rate (Wet)	Number of records of a species divided by all surveys. Wetland surveys.
Max Count	The highest count of a species recorded on a survey.
Location	The location of the highest count.
Date	The date of the highest count.

Table 2: All species recorded across the MWrbm project during the 2023-24 reporting period. Includes several other key statistics and information.

Species	Latin Name	Code	Waterbird	Status	Threatened Status (FFG)	Reporting Rate				Maximum		
						PPWP	Estuary	Riparian	Wetland	Count	Location	Date
Australasian Bittern	*Botaurus poiciloptilus*	AUBI	Yes	Native	Critically Endangered	0.23%	0.07%		1.36%	3	ETP - PARCS Wetland	28/05/2024
Australasian Darter	*Anhinga novaehollandiae*	AUDA	Yes	Native		4.19%	2.21%	2.68%	18.46%	19	Braeside Park	20/06/2024
Australasian Gannet	*Morus serrator*	AUGA	Yes	Native		0.63%	0.07%		0.24%	2	Jawbone Reserve	13/08/2023
Australasian Grebe	*Tachybaptus novaehollandiae*	AUGR	Yes	Native		9.22%	0.35%		34.43%	237	ETP	21/04/2024
Australasian Pipit	*Anthus novaeseelandiae*	AUPI		Native		1.40%	1.11%		5.86%	13	WTP - Western Lagoons	9/05/2024
Australasian Shoveler	*Spatula rhynchotis*	AUSH	Yes	Native	Vulnerable	2.31%	0.14%		13.64%	480	ETP	21/04/2024
Australian Hobby	*Falco longipennis*	AUHO		Native		0.91%	0.69%		3.37%	2	6 Locations	Several Dates
Australian King-Parrot	*Alisterus scapularis*	AUKP		Native		6.31%	0.14%	4.03%	6.02%	8	Lillydale Lake	3/04/2024
Australian Little Bittern	*Ixobrychus dubius*	ALBI	Yes	Native	Endangered	0.01%			0.08%	1	Bittern Reservoir	9/02/2024
Australian Magpie	*Gymnorhina tibicen*	AUMA		Native		49.64%	27.39%	55.03%	74.16%	55	Devilbend Reservoir	15/11/2023
Australian Owlet-nightjar	*Aegotheles cristatus*	AUON		Native		0.09%		1.34%	0.08%	1	Pyrites Creek Remnant	Several Dates
Australian Pelican	*Pelecanus conspicillatus*	AUPE	Yes	Native		7.44%	3.80%	0.67%	16.69%	75	ETP	25/02/2024
Australian Pied Oystercatcher	*Haematopus longirostris*	APOY	Yes	Native		3.18%	1.45%		1.77%	48	Lake Borrie Pond 29	8/02/2024
Australian Raven	*Corvus coronoides*	AURA		Native		3.17%	2.01%	4.03%	2.65%	11	Yering Backswamp	13/03/2024
Australian Reed-Warbler	*Acrocephalus australis*	AURW	Yes	Native		8.91%	11.27%	8.05%	31.54%	106	Seaford Wetland	28/09/2023
Australian Shelduck	*Tadorna tadornoides*	AUSH	Yes	Native		2.70%	1.59%		9.07%	4300	WTP - Summer Pond 2	11/01/2024
Australian Spotted Crake	*Porzana fluminea*	ASCR	Yes	Native		2.29%	2.63%		8.99%	26	Deans Marsh (East)	13/11/2024
Australian White Ibis	*Threskiornis moluccus*	AWIB	Yes	Native		16.12%	17.08%	0.67%	51.28%	1232	Jells Park	3/08/2023
Australian Wood Duck	*Chenonetta jubata*	AWDU	Yes	Native		13.82%	4.56%	15.44%	34.11%	247	Domaine Chandon Billabong	27/03/2024
Azure Kingfisher	*Ceyx azureus*	AZKI	Yes	Native		0.10%			0.48%	1	4 Locations	Several Dates
Baillon's Crake	*Zapornia pusilla*	BACR	Yes	Native		0.75%	0.07%		4.17%	4	Deans Marsh (East)	13/11/2023
Banded Stilt	*Cladorhynchus leucocephalus*	BAST	Yes	Native		0.44%			1.20%	147	Cheetham	28/11/2023
Barn Owl	*Tyto alba*	BAOW		Native		0.50%	0.07%		0.08%	1	Cherry Lake; Cardinia Creek Estuary	Several Dates
Bar-tailed Godwit	*Limosa lapponica*	B(A)TGO	Yes	Migratory Shorebird	Vulnerable	0.04%			0.24%	1	WTP - T-Section	Several Dates
Bassian Thrush	*Zoothera lunulata*	BATH		Native		0.38%			0.16%	1	Devilbend Reservoir	Several Dates
Bell Miner	*Manorina melanophrys*	BEMI		Native		3.13%		2.01%	7.46%	29	Domaine Chandon Billabong	21/05/2024
Black Duck-Mallard hybrid		BDMH	Yes	Hybrid		0.23%			1.20%	3	Queens Park	Several Dates
Black Falcon	*Falco subniger*	BLFA		Native	Critically Endangered	0.12%			0.56%	1	Deans Marsh (East & West); Jacana Wetland; Truganina Swamp	Several Dates
Black Kite	*Milvus migrans*	BLKI		Native		0.63%	1.11%		1.28%	5	Cunningham Swamp North	21/06/2024
Black Swan	*Cygnus atratus*	BLSW	Yes	Native		16.07%	11.07%		48.80%	1050	ETP	24/03/2024
Black-faced Cormorant	*Phalacrocorax fuscescens*	BFCO	Yes	Native		0.18%			0.08%	1	Jawbone Reserve	21/01/2024
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	BFCS		Native		6.35%	1.31%	8.72%	16.93%	28	Jacana Wetland	4/08/2023
Black-fronted Dotterel	*Elseyornis melanops*	BFDO	Yes	Native		2.63%	0.35%	0.67%	13.56%	80	ETP - Serpentine	16/06/2024
Black-shouldered Kite	*Elanus axillaris*	BSKI		Native		5.85%	3.25%	4.03%	22.31%	8	ETP	21/04/2024
Black-tailed Godwit	*Limosa limosa*	B(L)TGO	Yes	Migratory Shorebird	Critically Endangered	0.06%			0.16%	8	WTP - T-Section	9/11/2023
Black-tailed Native-hen	*Tribonyx ventralis*	BTNH	Yes	Native		0.27%	0.14%		1.04%	3	Deans Marsh (East)	11/12/2023
Blue-billed Duck	*Oxyura australis*	BBDU	Yes	Native	Vulnerable	1.93%			11.16%	204	ETP	24/12/2023
Blue-winged Parrot	*Neophema chrysostoma*	BWPA		Native	EPBC Listed (Vul)	0.49%	0.48%	0.67%	1.04%	48	Werribee River Remnant - Riversdale Drive	7/08/2023
Brolga	*Grus rubicunda*	BROL	Yes	Native	Endangered	0.44%			1.69%	10	WTP - Summer Pond 2	14/03/2024
Brown Falcon	*Falco berigora*	BRFA		Native		1.76%	1.18%	3.36%	5.46%	7	ETP	20/08/2023
Brown Goshawk	*Accipiter fasciatus*	BRGO		Native		2.91%	1.31%	4.70%	10.27%	4	Devilbend Reservoir	15/09/2023
Brown Goshawk/Collared Sparrowhawk spp		BGCS		Spuh		0.09%			0.08%	0	Coolart Wetlands	18/10/2023
Brown Quail	*Synoicus ypsilophorus*	BRQU		Native		0.83%			3.45%	6	Jensz Swamp; Cheetham	Several Dates

Brown Songlark	*Cincloramphus cruralis*	BRSO		Native		0.21%	0.07%		0.80%	2	ETP - Serpentine	19/11/2023
Brown Thornbill	*Acanthiza pusilla*	BRTH		Native		28.75%	30.64%	57.05%	50.16%	212	Devilbend Reservoir	20/05/2024
Brown Treecreeper	*Climacteris picumnus*	BRTR		Native		0.19%		0.67%		2	Pyrites Creek Remnant	30/11/2023
Brown-headed Honeyeater	*Melithreptus brevirostris*	BHHO		Native		1.25%	0.07%	2.68%	1.12%	16	Watsons Creek Estuary	22/03/2024
Brush Bronzewing	*Phaps elegans*	BRBR		Native		0.23%			0.56%	2	Devilbend Reservoir	22/01/2024
Buff-banded Rail	*Hypotaenidia philippensis*	BBRA	Yes	Native		1.52%	0.90%		5.54%	5	Mordialloc Creek Estuary	12/12/2023
Buff-rumped Thornbill	*Acanthiza reguloides*	BRTH		Native		0.45%		0.67%		2	Pyrites Creek Remnant	8/05/2024
Cape Barren Goose	*Cereopsis novaehollandiae*	CBGO	Yes	Native		2.12%	0.55%		1.12%	52	WTP - Paradise Road	8/02/2024
Caspian Tern	*Hydroprogne caspia*	CATE	Yes	Native	Vulnerable	0.94%	0.35%		1.12%	4	ETP; Devilbend Reservoir	Several Dates
Cattle Egret	*Bubulcus ibis*	CAEG	Yes	Native		0.81%	0.41%		4.33%	216	Baillieu Wetland	24/05/2024
Chestnut Teal	*Anas castanea*	CHTE	Yes	Native		24.30%	17.43%	2.01%	68.86%	3254	ETP	19/05/2024
Collared Sparrowhawk	*Accipiter cirrocephalus*	COSP		Native		0.89%	0.21%	1.34%	2.49%	3	Coburg Lake; Jacana Wetland	Several Dates
Common Blackbird	*Turdus merula*	COBL		Introduced		26.87%	27.04%	59.06%	57.78%	24	Newell's Paddock Wetland	31/08/2023
Common Bronzewing	*Phaps chalcoptera*	COBR		Native		4.16%	0.83%	2.01%	10.59%	18	Birrarrung Billabong West	16/04/2024
Common Greenfinch	*Chloris chloris*	COGR(F)		Introduced		3.96%	2.77%	6.71%	15.65%	35	Deans Marsh (West)	21/05/2024
Common Greenshank	*Tringa nebularia*	COGR(S)	Yes	Migratory Shorebird	Endangered	0.96%	0.69%		1.52%	9	Cheetham; Jawbone Wetlands	Several Dates
Common Myna	*Acridotheres tristis*	COMY		Introduced		29.74%	24.27%	30.20%	60.43%	70	Newell's Paddock Wetland	13/04/2024
Common Sandpiper	*Actitis hypoleucos*	COSA	Yes	Migratory Shorebird	Vulnerable	0.03%	0.14%		0.08%	1	Yarra Estuary; Bass Estuary; Cheetham	Several Dates
Common Starling	*Sturnus vulgaris*	COST		Introduced		23.59%	26.56%	24.16%	58.19%	885	ETP	23/06/2024
Corella spp		COSP		Spuh		0.72%			0.56%	5	Burke Rd Billabong	21/11/2023
Crescent Honeyeater	*Phylidonyris pyrrhopterus*	CRHO		Native		0.67%	0.07%	0.67%	1.04%	5	Cockatoo Creek Floodplain Wetland	19/09/2023
Crested Pigeon	*Ocyphaps lophotes*	CRPI		Native		16.36%	6.57%	12.75%	37.16%	59	Wannarkladdin Wetland	12/04/2024
Crested Shrike-tit	*Falcunculus frontatus*	CRST		Native		0.56%	0.07%	0.67%	0.56%	3	Seaford Wetland	29/04/2024
Crimson Rosella	*Platycercus elegans*	CRRO		Native		14.44%	0.48%	26.17%	14.93%	34	Yarra Bridge Streamside Reserve	30/04/2024
Crow & Raven spp		CRSP		Spuh		1.15%	0.07%		1.20%	11	Coolart Wetlands	18/12/2023
Curlew Sandpiper	*Calidris ferruginea*	CUSA	Yes	Migratory Shorebird	Critically Endangered	0.82%	0.28%		2.01%	238	WTP - T-Section	11/01/2024
Domestic (Greylag) Goose	*Anser anser*	D(GO	Yes	Domestic		0.03%			0.16%	4	Seaford Wetland	28/01/2024
Domestic Duck		DODU	Yes	Domestic		0.84%	0.48%		2.17%	5	Albert Park	6/09/2023
Domestic Goose		DOGO	Yes	Domestic		0.18%	0.07%		0.56%	6	Seaford Wetland	29/12/2023
Double-banded Plover	*Charadrius bicinctus*	DBPL	Yes	Migratory Shorebird		0.46%	0.14%		0.88%	111	Cheetham	3/08/2023
Duck spp		DUSP	Yes	Spuh		0.04%			0.08%	1	Jacana Wetland	7/05/2024
Dusky Moorhen	*Gallinula tenebrosa*	DUMO	Yes	Native		21.05%	12.24%	13.42%	63.56%	105	Albert Park	6/09/2023
Dusky Woodswallow	*Artamus cyanopterus*	DUWO		Native		2.43%	0.83%	1.34%	6.02%	24	Devilbend Reservoir	15/02/2024
Eastern Koel	*Eudynamys orientalis*	EAKO		Native		0.32%			0.24%	1	Braeside Park; Grasmere Wetland; Baillieu Wetland	Several Dates
Eastern Rosella	*Platycercus eximius*	EARO		Native		14.79%	4.01%	23.49%	27.37%	51	Domaine Chandon Billabong	21/05/2024
Eastern Spinebill	*Acanthorhynchus tenuirostris*	EASP		Native		7.79%	1.66%	6.71%	7.87%	9	Devilbend Reservoir	20/05/2024
Eastern Whipbird	*Psophodes olivaceus*	EAWH		Native		1.28%		0.67%	0.64%	2	Cockatoo Creek Floodplain Wetland; Yarra Bridge Streamside Reserve; Grasmere Wetland; Cannibal Creek Remnant	Several Dates
Eastern Yellow Robin	*Eopsaltria australis*	EYRO		Native		8.40%	5.19%	11.41%	10.83%	12	Cockatoo Creek Floodplain Wetland	18/11/2023
Eurasian Coot	*Fulica atra*	EUCO	Yes	Native		23.08%	15.35%	2.68%	75.12%	19062	ETP	24/03/2024
Eurasian Skylark	*Alauda arvensis*	EUSK		Introduced		4.23%	10.10%	0.67%	14.13%	40	ETP	23/06/2024
Eurasian Tree Sparrow	*Passer montanus*	ETSP		Introduced		0.46%	0.41%		1.20%	30	ETP	17/09/2023
European Goldfinch	*Carduelis carduelis*	EUGO		Introduced		7.93%	8.99%	16.11%	27.05%	126	ETP	19/05/2024
Fairy Martin	*Petrochelidon ariel*	FAMA		Native		3.08%	0.97%	2.68%	11.80%	112	WTP - T-Section	12/10/2023
Fan-tailed Cuckoo	*Cacomantis flabelliformis*	FTCU		Native		3.82%	0.83%	0.67%	6.50%	6	Devilbend Reservoir	15/10/2023
Far Eastern Curlew	*Numenius madagascariensis*	FECU	Yes	Migratory Shorebird	Critically Endangered	0.28%	0.07%			1	Yallock Creek Estuary	18/04/2024
Flame Robin	*Petroica phoenicea*	FLRO		Native		1.03%	0.35%	1.34%	4.82%	10	ETP - Banyan Wetland	16/06/2024

Fork-tailed Swift	*Apus pacificus*	FTSW		Migratory Swift		0.06%			0.16%	5	BarnBam Swamp	11/03/2024
Freckled Duck	*Stictonetta naevosa*	FRDU	Yes	Native	Endangered	0.46%			2.89%	16	Braeside Park	24/11/2023
Galah	*Eolophus roseicapilla*	GALA		Native		14.29%	2.42%	17.45%	27.45%	40	Jacana Wetland	7/07/2023
Gang-gang Cockatoo	*Callocephalon fimbriatum*	GGCO		Native	Endangered	2.40%		4.03%	1.52%	10	Plenty River Works Site 4	20/05/2024
Glossy Ibis	*Plegadis falcinellus*	GLIB	Yes	Native		0.06%			0.16%	1	ETP - Rossiter Rd Lagoon	19/11/2023
Golden Whistler	*Pachycephala pectoralis*	GOWH		Native		8.34%	2.63%	17.45%	14.13%	10	Cockatoo Creek Floodplain Wetland; Spadoni Reserve; Devilbend Reservoir	Several Dates
Golden-headed Cisticola	*Cisticola exilis*	GHCI	Yes	Native		9.62%	13.49%	4.70%	37.32%	88	Seaford Wetland	29/12/2023
Great Cormorant	*Phalacrocorax carbo*	GRCO	Yes	Native		4.09%	3.73%	2.68%	14.21%	29	ETP	3/12/2023
Great Crested Grebe	*Podiceps cristatus*	GCGR	Yes	Native		1.76%	2.21%		6.66%	56	ETP	24/03/2024
Great Egret	*Ardea alba*	GREG	Yes	Native	Vulnerable	6.49%	5.81%		25.20%	22	ETP	29/10/2023
Great Pied Cormorant	*Phalacrocorax varius*	GPCO	Yes	Native		5.00%	5.39%		6.50%	181	Cherry Lake	13/06/2024
Greater Crested Tern	*Thalasseus bergii*	GCTE	Yes	Native		3.74%	4.84%		3.45%	65	Werribee River Estuary	2/02/2024
Grey Butcherbird	*Cracticus torquatus*	GRBU		Native		24.94%	9.54%	12.08%	47.35%	24	Seaford Wetland	29/10/2024
Grey Currawong	*Strepera versicolor*	GRCU		Native		4.60%	1.04%	5.37%	5.38%	8	Devilbend Reservoir	15/11/2023
Grey Fantail	*Rhipidura albiscapa*	GRFA		Native		27.40%	25.03%	60.40%	50.72%	68	Dandenong Valley Wetland	21/12/2023
Grey Goshawk	*Accipiter novaehollandiae*	GRGO		Native	Endangered	0.17%			0.32%	1	Grasmere Wetland; Jacana Wetland; PARCS Wetland	Several Dates
Grey Shrike-thrush	*Colluricincla harmonica*	GRST		Native		14.32%	10.24%	29.53%	23.03%	26	Devilbend Reservoir	20/05/2024
Grey Teal	*Anas gracilis*	GRTE	Yes	Native		12.67%	11.62%		47.27%	3070	ETP	25/02/2024
Hardhead	*Aythya australis*	HARD	Yes	Native		4.57%	0.07%		22.47%	617	ETP	24/12/2023
Hoary-headed Grebe	*Poliocephalus poliocephalus*	HHGR	Yes	Native		13.72%	9.41%		48.31%	1298	ETP	24/03/2024
Horsfield's Bronze-Cuckoo	*Chalcites basalis*	HOBC		Native		3.16%	1.80%	3.36%	10.67%	6	Jacana Wetland	13/10/2023
Horsfield's Bushlark	*Mirafra javanica*	HOBU		Native		0.07%			0.08%	1	Baillieu Wetland	24/05/2024
House Sparrow	*Passer domesticus*	HOSP		Introduced		11.56%	13.21%	14.77%	29.05%	220	Deans Marsh (West)	11/12/2023
Jacky Winter	*Microeca fascinans*	JAWI		Native		0.16%			0.08%	1	Cockatoo Creek Floodplain Wetland	21/06/2024
Kelp Gull	*Larus dominicanus*	KEGU	Yes	Native		0.28%	0.07%			1	Chinamans Creek Estuary	7/12/2023
Latham's Snipe	*Gallinago hardwickii*	LASN	Yes	Migratory Shorebird	EPBC Listed (Vul)	1.17%	0.48%	1.34%	6.58%	65	Edithvale Wetland North	20/02/2024
Laughing Kookaburra	*Dacelo novaeguineae*	LAKO		Native		11.93%	1.11%	12.75%	17.01%	12	Cockatoo Creek Floodplain Wetland	18/01/2024
Lewin's Honeyeater	*Meliphaga lewinii*	LEHO		Native		1.57%		2.01%		1	Olinda Creek Riparian Sites	Several Dates
Lewin's Rail	*Lewinia pectoralis*	LERA	Yes	Native	Vulnerable	0.19%	0.28%		0.40%	1	5 Locations	Several Dates
Little Black Cormorant	*Phalacrocorax sulcirostris*	LB(L)CO	Yes	Native		11.97%	10.03%	4.03%	36.04%	150	Werribee River Estuary	23/05/2024
Little Corella	*Cacatua sanguinea*	LICO		Native		7.84%	0.69%	4.70%	13.80%	556	Albert Park	7/05/2024
Little Eagle	*Hieraaetus morphnoides*	LIEA		Native	Vulnerable	0.55%	0.21%	0.67%	1.12%	1	17 Locations	Several Dates
Little Egret	*Egretta garzetta*	LIEG	Yes	Native	Vulnerable	1.81%	1.04%		4.25%	14	WTP - Western Lagoons	13/06/2024
Little Grassbird	*Poodytes gramineus*	LIGR	Yes	Native		8.72%	5.26%	3.36%	39.49%	55	Deans Marsh (East)	19/01/2024
Little Lorikeet	*Glossopsitta pusilla*	LILO		Native		0.48%	0.07%		1.28%	6	Cherry Lake	18/03/2024
Little Pied Cormorant	*Microcarbo melanoleucos*	LPCO	Yes	Native		23.25%	23.86%	4.70%	56.26%	77	ETP	7/01/2024
Little Raven	*Corvus mellori*	LIRA		Native		39.99%	22.82%	48.32%	70.95%	131	ETP	21/04/2024
Little Wattlebird	*Anthochaera chrysoptera*	LIWA		Native		13.33%	12.45%	2.01%	23.84%	31	Seaford Wetland	26/08/2023
Long-billed Corella	*Cacatua tenuirostris*	LB(I)CO		Native		3.43%	0.41%	7.38%	7.30%	45	Domaine Chandon Billabong	21/05/2024
Magpie Goose	*Anseranas semipalmata*	MAGO	Yes	Native	Vulnerable	0.10%			0.64%	4	Edithvale Wetland - North	22/04/2024
Magpie-lark	*Grallina cyanoleuca*	MALA(R)		Native		35.56%	28.63%	30.20%	75.20%	565	ETP	23/06/2024
Marsh Sandpiper	*Tringa stagnatilis*	MASA	Yes	Migratory Shorebird	Endangered	0.23%			0.96%	17	WTP - Western Lagoons	14/12/2023
Masked Lapwing	*Vanellus miles*	MALA(P)	Yes	Native		15.03%	9.61%	4.03%	39.33%	231	ETP	24/12/2023
Mistletoebird	*Dicaeum hirundinaceum*	MIST		Native		2.06%	0.48%	5.37%	4.09%	8	Lillydale Lake	8/02/2024
Muscovy Duck	*Cairina moschata*	MU(C)DU	Yes	Domestic		0.08%			0.56%	4	Edwardes Lake	27/06/2024
Musk Duck	*Biziura lobata*	MUDU	Yes	Native	Vulnerable	2.04%	1.80%		6.90%	36	WTP - Paradise Road	3/08/2024
Musk Lorikeet	*Glossopsitta concinna*	MULO		Native		11.92%	2.97%	10.07%	21.99%	61	ETP	3/08/2024
Nankeen Kestrel	*Falco cenchroides*	NAKE		Native		2.32%	1.11%	1.34%	9.31%	4	ETP	Several Dates
Nankeen Night-Heron	*Nycticorax caledonicus*	NANH	Yes	Native		1.86%	0.97%	0.67%	8.43%	12	Edithvale Wetlands - South	Several Dates
New Holland Honeyeater	*Phylidonyris novaehollandiae*	NHHO		Native		15.36%	7.05%	28.86%	34.03%	65	Westgate Park	15/05/2024

Noisy Miner	*Manorina melanocephala*	NOMI		Native		38.00%	24.69%	16.78%	59.23%	172	Seaford Wetland	29/10/2023
Olive Whistler	*Pachycephala olivacea*	OLWH		Native		0.16%			0.08%	1	Beaconsfield Nature Conservation Reserve	8/10/2023
Olive-backed Oriole	*Oriolus sagittatus*	OBOR		Native		0.98%			1.93%	7	Devilbend Reservoir	15/10/2023
Pacific Black Duck	*Anas superciliosa*	PBDU	Yes	Native		31.01%	21.09%	17.45%	80.10%	929	WTP - Paradise Road	13/07/2023
Pacific Golden Plover	*Pluvialis fulva*	PGPL	Yes	Migratory Shorebird	Vulnerable	0.08%	0.07%		0.16%	17	Seaford Wetland	29/02/2024
Pacific Gull	*Larus pacificus*	PAGU	Yes	Native		4.06%	1.66%		1.77%	25	Chinamans Creek Estuary	8/05/2024
Painted Button-quail	*Turnix varius*	PBQU		Native		0.11%			0.16%	1	Beaconsfield Nature Conservation Reserve	8/10/2023
Pallid Cuckoo	*Heteroscenes pallidus*	PACU		Native		0.36%		0.67%	0.56%	3	Domaine Chandon Billabong	21/11/2023
Pectoral Sandpiper	*Calidris melanotos*	PESA	Yes	Migratory Shorebird		0.05%			0.32%	2	Seaford Wetland	19/03/2024
Peregrine Falcon	*Falco peregrinus*	PEFA		Native		0.69%	0.14%	0.67%	2.09%	2	ETP	29/10/2023
Pied Currawong	*Strepera graculina*	PICU		Native		17.18%	0.83%	6.04%	21.67%	14	Cockatoo Creek Floodplain Wetland	18/01/2024
Pied Stilt	*Himantopus leucocephalus*	PIST	Yes	Native		4.56%	1.31%		18.70%	213	ETP	24/12/2023
Pink Robin	*Petroica rodinogaster*	PIRO		Native		0.25%			0.40%	1	5 Locations	Several Dates
Pink-eared Duck	*Malacorhynchus membranaceus*	PEDU	Yes	Native		1.64%	0.07%		7.54%	940	WTP - Summer Pond 2	9/05/2024
Plumed Egret	*Ardea plumifera*	PLEG	Yes	Native	Critically Endangered	0.11%			0.48%	2	ETP; Wannarkladdin Wetland; Morang Wetland	Several Dates
Powerful Owl	*Ninox strenua*	POOW		Native	Vulnerable	0.52%				1	Grasmere Wetland	15/06/2024
Purple Swamphen	*Porphyrio porphyrio*	PUSW	Yes	Native		24.73%	6.98%	5.37%	70.79%	305	Edithvale Wetlands - South	12/03/2024
Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*	PCLO		Native		0.61%	0.07%	4.03%	0.96%	19	Cherry Lake	6/05/2024
Rainbow Bee-eater	*Merops ornatus*	RABE		Native		0.04%			0.16%	4	Domaine Chandon Billabong	5/03/2024
Rainbow Lorikeet	*Trichoglossus moluccanus*	RALO		Native		42.64%	20.47%	36.24%	68.70%	150	Baillieu Wetland	10/06/2024
Red Wattlebird	*Anthochaera carunculata*	REWA		Native		38.45%	21.30%	42.95%	63.56%	160	Westgate Park	15/04/2024
Red-browed Finch	*Neochmia temporalis*	RBFI		Native		9.70%	4.43%	32.21%	28.17%	113	ETP	19/05/2024
Red-capped Plover	*Charadrius ruficapillus*	RCPL	Yes	Native		1.49%	0.76%		2.17%	110	Cheetham	1/07/2023
Red-capped Robin	*Petroica goodenovii*	RCRO		Native		0.02%			0.08%	1	Troups Creek Wetland	25/01/2024
Red-kneed Dotterel	*Erythrogonys cinctus*	RKDO	Yes	Native		0.54%	0.07%		2.25%	7	Truganina Swamp	23/11/2023
Red-necked Avocet	*Recurvirostra novaehollandiae*	RNAV	Yes	Native		1.19%	0.14%		3.45%	536	WTP - 85WC Pond 9	14/12/2023
Red-necked Stint	*Calidris ruficollis*	RNST	Yes	Migratory Shorebird		1.85%	1.52%		3.29%	1830	Cheetham	28/11/2023
Red-rumped Parrot	*Psephotus haematonotus*	RRPA		Native		5.89%	3.04%	20.13%	14.37%	24	Braeside Park	29/12/2023
Rock Dove	*Columba livia*	RODO		Introduced		10.65%	8.51%	4.70%	26.32%	130	Cherry Lake	12/06/2024
Rose Robin	*Petroica rosea*	RORO		Native		0.74%		0.67%	0.24%	1	Cherry Lake; Bolin Bolin Billabong; Olinda Creek; Yering Backswamp	Several Dates
Royal Spoonbill	*Platalea regia*	ROSP	Yes	Native		3.95%	2.70%		14.45%	43	Seaford Wetland	29/02/2024
Rufous Fantail	*Rhipidura rufifrons*	RUFA		Native		1.27%		2.01%	1.04%	5	Cockatoo Creek Floodplain Wetland	18/01/2024
Rufous Songlark	*Cincloramphus mathewsi*	RUSO		Native		0.20%			0.88%	5	Jacana Wetland	15/09/2023
Rufous Whistler	*Pachycephala rufiventris*	RUWH		Native		6.12%	3.53%	10.74%	4.98%	16	Cockatoo Creek Floodplain Wetland	18/11/2023
Sacred Kingfisher	*Todiramphus sanctus*	SAKI		Native		2.00%	0.55%	6.71%	4.01%	5	Spadoni Billabong	Several Dates
Satin Bowerbird	*Ptilonorhynchus violaceus*	SABO		Native		0.51%			0.08%	3	Grasmere Wetland	26/08/2023
Satin Flycatcher	*Myiagra cyanoleuca*	SAFL		Native		0.70%			0.16%	1	Coolart Wetlands	20/11/2023
Scaly-breasted Lorikeet	*Trichoglossus chlorolepidotus*	SBLO		Introduced		0.08%			0.32%	2	River Gum Creek Reserve	Several Dates
Scarlet Honeyeater	*Myzomela sanguinolenta*	SCHO		Native		0.31%		0.67%	0.32%	3	Police Rd Retarding Basin	1/11/2023
Scarlet Robin	*Petroica boodang*	SCRO		Native		0.94%		1.34%	0.48%	3	Grasmere Wetland	6/04/2024
Sharp-tailed Sandpiper	*Calidris acuminata*	STSA	Yes	Migratory Shorebird	EPBC Listed (Vul)	1.82%	0.83%		6.26%	2203	ETP	24/12/2023
Shining Bronze-Cuckoo	*Chalcites lucidus*	SBCU		Native		2.22%	0.48%	2.01%	4.65%	7	Devilbend Reservoir	15/10/2023
Silver Gull	*Larus novaehollandiae*	SIGU	Yes	Native		20.10%	21.16%		34.83%	1200	Chinamans Creek Estuary	7/12/2023
Silvereye	*Zosterops lateralis*	SILV		Native		16.79%	19.16%	40.27%	32.18%	100	Olinda Creek	7/06/2024
Singing Honeyeater	*Gavicalis virescens*	SIHO		Native		1.77%	1.87%		3.53%	6	Jawbone Reserve	28/11/2023

Small grebe spp		SMSP	Yes	Spuh		0.11%			0.32%	0	Edwardes Lake	Several Dates
Song Thrush	*Turdus philomelos*	SOTH		Introduced		0.43%		2.01%	1.61%	3	Police Rd Retarding Basin	2/01/2024
Sooty Oystercatcher	*Haematopus fuliginosus*	SOOY	Yes	Native		1.12%			0.40%	6	Jawbone Reserve	21/01/2024
Southern Boobook	*Ninox boobook*	SOBO		Native		0.54%			0.24%	1	Devilbend Reservoir; Cockatoo Creek Floodplain Wetland	Several Dates
Southern Emu-wren	*Stipiturus malachurus*	SOEW		Native		0.06%	0.07%		0.16%	3	Bass River Estuary	7/02/2024
Spiny-cheeked Honeyeater	*Acanthagenys rufogularis*	SCHO		Native		1.53%	1.94%	1.34%	4.74%	12	ETP - Banyan Wetland	14/04/2024
Spotless Crake	*Zapornia tabuensis*	SPCR	Yes	Native		1.69%	0.41%		8.91%	5	Seaford Wetland	29/12/2023
Spotted Dove	*Spilopelia chinensis*	SPDO		Introduced		30.24%	25.10%	19.46%	57.62%	78	Seaford Wetland	28/09/2023
Spotted Harrier	*Circus assimilis*	SPHA		Native		0.01%	0.07%			1	Cardinia Creek Estuary	4/06/2024
Spotted Pardalote	*Pardalotus punctatus*	SPPA		Native		19.44%	8.23%	56.38%	36.68%	26	Seaford Wetland	29/04/2024
Square-tailed Kite	*Lophoictinia isura*	STKI		Native	Vulnerable	0.04%			0.16%	2	Lillydale Lake	7/12/2023
Straw-necked Ibis	*Threskiornis spinicollis*	SNIB	Yes	Native		5.17%	2.56%	1.34%	18.46%	259	Devilbend Reservoir	15/09/2023
Striated Fieldwren	*Calamanthus fuliginosus*	STFI		Native		0.66%	1.94%		0.56%	3	Cardinia Creek Estuary	7/02/2024
Striated Pardalote	*Pardalotus striatus*	STPA		Native		6.86%	0.90%	23.49%	13.48%	15	Braeside Park	24/08/2023
Striated Thornbill	*Acanthiza lineata*	STTH		Native		3.81%	0.14%	6.04%	4.90%	28	Devilbend Reservoir	20/05/2024
Stubble Quail	*Coturnix pectoralis*	STQU		Native		0.99%	1.80%	3.36%	3.05%	6	Jensz Swamp	6/05/2024
Sulphur-crested Cockatoo	*Cacatua galerita*	SCCO		Native		18.79%	1.52%	26.85%	34.67%	34	Grasmere Wetland	26/08/2023
Superb Fairy-wren	*Malurus cyaneus*	SUFA		Native		36.15%	42.12%	77.85%	74.48%	185	Dandenong Valley Wetland	24/08/2023
Swamp Harrier	*Circus approximans*	SWHA	Yes	Native		5.24%	4.56%	0.67%	23.35%	10	ETP	Several Dates
Tawny Frogmouth	*Podargus strigoides*	TAFR		Native		7.27%	0.21%	0.67%	4.98%	6	Jacana Wetland	Several Dates
Tawny Grassbird	*Cincloramphus timoriensis*	TAGR	Yes	Vagrant Native		0.07%			0.32%	1	Police Rd Retarding Basin; Seaford Wetland	Several Dates
Teal spp		TESP	Yes	Spuh		0.11%			0.40%	60	RAAF Lake	15/11/2023
Tree Martin	*Petrochelidon nigricans*	TRMA		Native		1.45%	1.11%	2.01%	1.85%	22	Seaford Wetland	29/12/2023
Varied Sittella	*Daphoenositta chrysoptera*	VASI		Native		0.44%			0.56%	24	Devilbend Reservoir	20/05/2024
Wandering Whistling-Duck	*Dendrocygna arcuata*	WWDU	Yes	Vagrant Native		0.04%			0.24%	4	Tootgarook Swamp	Several Dates
Wedge-tailed Eagle	*Aquila audax*	WTEA		Native		2.26%	0.21%	2.68%	3.61%	5	Gisborne Racecourse Swamp	22/04/2024
Weebill	*Smicrornis brevirostris*	WEWE		Native		1.13%		4.03%	2.25%	3	Pyrites Creek Remnant	5/06/2023
Welcome Swallow	*Hirundo neoxena*	WESW		Native		33.90%	30.84%	30.20%	71.75%	1140	ETP	21/04/2024
Whiskered Tern	*Chlidonias hybrida*	WHTE	Yes	Native		2.08%	3.11%		5.86%	1050	WTP - 85WC Pond 9	9/11/2023
Whistling Kite	*Haliastur sphenurus*	WHKI		Native		2.46%	3.67%	2.01%	7.87%	45	Werribee River Estuary	23/05/2024
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	WBSE	Yes	Native	Endangered	0.43%	0.35%		1.61%	3	Yallock Creek Estuary	18/04/2024
White-browed Scrubwren	*Sericornis frontalis*	WBSW		Native		20.25%	19.23%	54.36%	39.97%	35	Seaford Wetland	29/10/2023
White-browed Woodswallow	*Artamus superciliosus*	WBWO		Native		0.03%			0.08%	2	Jacana Wetland	10/11/2023
White-eared Honeyeater	*Nesoptilotis leucotis*	WEHO		Native		5.10%	4.29%	6.71%	6.50%	15	Cockatoo Creek Floodplain Wetland	18/11/2023
White-faced Heron	*Egretta novaehollandiae*	WFHE	Yes	Native		17.35%	14.25%	7.38%	51.36%	50	Bass River Estuary	19/04/2024
White-fronted Chat	*Epthianura albifrons*	WFCH	Yes	Native		2.52%	4.22%		8.83%	139	ETP	25/02/2024
White-naped Honeyeater	*Melithreptus lunatus*	WNHO		Native		2.94%	0.07%	12.75%	2.65%	23	Yering Backswamp	25/06/2024
White-necked Heron	*Ardea pacifica*	WNHE	Yes	Native		1.58%	0.28%	2.01%	6.58%	9	Truganina Swamp	15/12/2023
White-plumed Honeyeater	*Ptilotula penicillata*	WPHO		Native		14.47%	13.07%	40.94%	43.58%	75	Westgate Park	15/11/2023
White-throated Needletail	*Hirundapus caudacutus*	WTNE		Migratory Swift	Vulnerable	1.25%			0.08%	1	Seaford Wetland	25/03/2024
White-throated Treecreeper	*Cormobates leucophaea*	WTTR		Native		5.23%		12.75%	4.33%	10	Cockatoo Creek Floodplain Wetland	26/01/2024
White-winged Black Tern	*Chlidonias leucopterus*	WWBT	Yes	Migratory Tern		0.12%	0.14%		0.16%	5	WTP - Western Lagoons	14/12/2023
White-winged Triller	*Lalage tricolor*	WWTR		Native		0.34%			0.64%	3	Jacana Wetland	19/01/2024
Willie Wagtail	*Rhipidura leucophrys*	WIWA		Native		16.07%	13.49%	17.45%	45.75%	52	ETP	21/04/2024
Wonga Pigeon	*Leucosarcia melanoleuca*	WOPI		Native		0.11%			0.32%	2	Yarra Bridge Streamside Reserve	15/08/2023
Wood Sandpiper	*Tringa glareola*	WOSA	Yes	Migratory Shorebird	Endangered	0.01%			0.08%	1	Cunningham Swamp North	12/02/2024
Yellow Thornbill	*Acanthiza nana*	YETH		Native		2.18%	0.41%	12.08%	4.57%	12	Jacana Wetland	31/12/2023
Yellow-billed Spoonbill	*Platalea flavipes*	YBSP	Yes	Native		1.39%	0.41%		5.86%	11	WTP - T-Section	14/03/2024
Yellow-faced Honeyeater	*Caligavis chrysops*	YFHO		Native		12.22%	8.64%	39.60%	18.22%	155	Devilbend Reservoir	20/05/2023

Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*	YRTH		Native		3.19%	1.18%	3.36%	8.91%	20	Yallock Creek Estuary	26/05/2024
Yellow-tailed Black-Cockatoo	*Zanda funerea*	YTBC		Native		4.48%	0.41%	2.68%	4.90%	60	Devilbend Reservoir	15/08/2023
Yellow-tufted Honeyeater	*Lichenostomus melanops*	YTHO		Native	*	0.16%		3.36%	0.56%	15	Cockatoo Creek Floodplain Wetland	6/04/2024
Zebra Finch	*Taeniopygia castanotis*	ZEFI		Native		0.18%	0.28%		0.24%	8	WTP - T-Section	13/06/2024

*Subspecies of Yellow-tufted Honeyeater (Helmeted Honeyeater), found at Cockatoo Creek Floodplain is critically endangered under state legislation. Individuals found at other locations, primarily Werribee and Maribyrnong Catchments, are of least concern.

Catchment Regions

Within the Port Phillip and Western Port natural resource management region, there are five catchments: Dandenong, Maribyrnong, Werribee, Western Port and Yarra. Each of these regions are mapped out along with their locations under each of the catchment summaries that are presented in this report.

Across the following summaries, the accompanying tables contain data with statistical information for each location. The purpose of each field is expressed in Table 3.

Table 3: Meaning of each field in Table's 5, 6, 7, 8 and 9

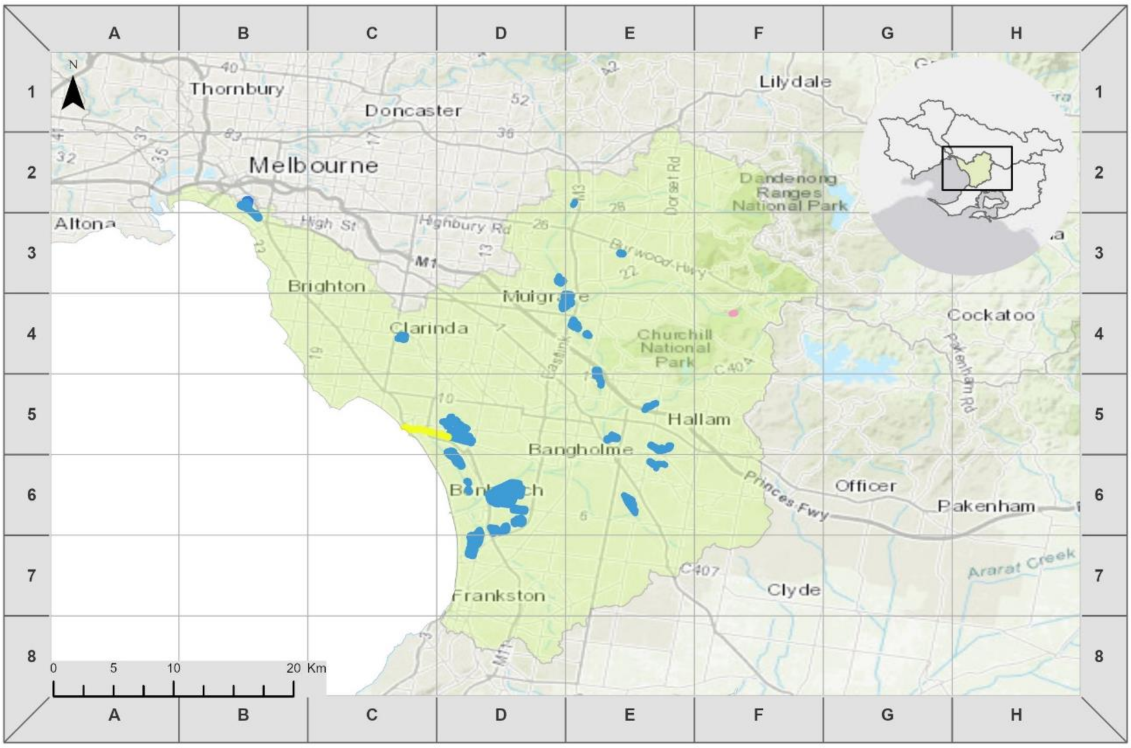
Field	Meaning	Survey Type
Site	Location of the survey	Estuary, Riparian, Wetland
Category	The site category as defined by Table 4	Wetland
Section	The number of 200m transect sections along an estuary that were surveyed	Estuary
Surveys	The number of surveys completed at a location.	Estuary, Riparian, Wetland
Species	The total number of species observed at a location.	Estuary, Riparian, Wetland
Waterbird species	The total number of waterbird species observed at a location.	Estuary, Riparian, Wetland
Introduced species	The total number of introduced species observed at a location.	Estuary, Riparian, Wetland
Breeding species	The total number of breeding species observed at a location.	Estuary, Riparian, Wetland
Breeding waterbird species	The total number of breeding waterbird species observed at a location.	Estuary, Riparian, Wetland
Min abundance (wetlands)	The sum of waterbird individuals counted on a survey with the lowest count of waterbirds relative to other surveys at a location.	Wetland
Min abundance (riparian)	The sum of all individuals counted on a survey with the lowest count of individual birds relative to other surveys at a location.	Riparian
Max abundance (wetlands)	The sum of waterbird individuals counted on a survey with the highest count of waterbirds relative to other surveys at a location.	Wetland
Max abundance (riparian)	The sum of all individuals counted on a survey with the highest count of individual birds relative to other surveys at a location.	Riparian

Accumulative abundance	The sum of all species' highest recorded counts at a location.	Wetland, Riparian
Threatened species	Threatened species as defined under state legislation. Includes three federally listed species.	Estuary, Riparian, Wetland

Table 4: Wetland site categories.

Code	**Category**	**Significance**
A	Ramsar wetlands	International
B	IBBA (Important Bird and Biodiversity Area) - not included in Ramsar sites	International
C	SSN (Shorebird Site Network) wetlands	International
D	DIWA (Directory of Important Wetlands in Australia) - not included in Ramsar sites	National
E	Seasonal Herbaceous Wetlands (Freshwater)	National
F	Growling Grass Frog reserve wetlands	National
G	Dwarf Galaxias habitat ponds	National
H	Significant wetlands listed in previous assessments (e.g. Schulz et al. 1991, Larwill & Costello 1992, Moore 1994, DNRE 2000)	State
I	Significant wetlands listed in previous assessments	Regional
J	Priority billabongs	Regional
K	Melbourne Water's Sites of Biodiversity Significance (SoBS) (see Ecology Australia 2013a and 2013b)	Regional
L	Significant wetlands listed in previous assessments	Other/Local
M	"Potential SoBS" - sites raised as potentially significant for natural values	Other/Local
N	Southeast cluster of constructed wetlands (NHT-funded construction)	Local
O	Social value wetlands added by 2018 HWS writing team	Social
P	Other wetlands identified through co-design	Social or Natural

Dandenong Catchment

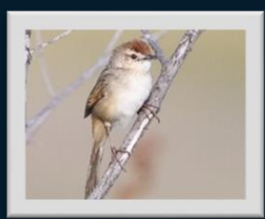


ESTUARIES	
C5	Mordialloc Creek
RIPARIAN	
F4	Monbulk Creek Rem
WETLANDS	
B2	Albert Park
E6	BarnBam Swamp
D5	Braeside Park
D6	Chelsea Heights Wetland
D4	Dandenong Valley Wetland
D6	Edithvale North Wetland
D6	Edithvale South Wetland
E5	Frog Hollow Wetland
E5	Hallam Valley Floodplain
D3	Jells Park
C4	Karkarook Park
E5	Kilberry Boulevard Wetland
E3	Lakewood Reserve
E4	Heatherton Road North
E5	Heatherton Road South
E4	Police Road Retarding Basin
E6	Rivergum Creek Reserve
D7	Seaford Swamp Wetland
E4	Tirhatuan NCR Wetland
E5	Troups Creek Wetland
D6	Wannarkladdin Wetland
D5	Waterways Estate Wetlands
E2	Winton Wetland (Wantirna)
D5	Woodlands Estate Wetland
WETLANDS - ETP	
D6	Banyan Waterhole
D6	Boggy Creek Wetlands
D6	Eastern Treatment Plant
D6	PARCS Wetland
D6	Rossiter Road Lagoon
D6	Serpentine Wetlands
D6	The Doughnut

SPECIES	SURVEYS	HOURS
173	401	2,332

Top Stories

Climate Signal



Tawny Grassbird, a small wetland species that inhabits well vegetated wetlands across Northern Australia and Southeast Asia, were recorded at two wetlands in the Dandenong Catchment: Police Road Retarding Basin and Seaford Wetlands. Birdwatchers also reported them at several other wetlands across Melbourne. Prior to these sightings, only around a dozen sightings across Victoria had ever been recorded. Perhaps these sightings are evidence of a shift in species distribution as a result of a warming climate.

Sharp Return

Recent population estimates along the East Asian Australasian Flyway has placed the Sharp-tailed Sandpiper on the national threatened species list with an estimated 73,000 individuals. Despite this, they continue to appear in good numbers at wetlands in the Carrum Key Biodiversity Area. Around 3% of the population was recorded at the Eastern Treatment Plant in December 2023 and approximately 1.3% of the population at Seaford in February 2024.

Image credit ‘Top Stories’: Tawny Grassbird - Andrew Silcocks, Sharp-tailed Sandpiper – Andrew Silcocks

Table 5: Monitoring data across all MWrbm sites in the Dandenong catchment

Estuary											
Site	Sections	Surveys	Species	Waterbird Species	Introduced Species	Breeding Species	Breeding WB Species	Threatened Species			
Mordialloc Creek	17	6	70	31	9	6	1	3			
Riparian											
Site	Category	Surveys	Species	Waterbird Species	Introduced Species	Breeding Species	Breeding WB Species	Min Abundance	Max Abundance	Accumulative Abundance	Threatened Species
Monbulk Creek Rem_H11707	Remnant	1	11	2	1	0	0	29	29	29	0
Wetland											
Site	Category	Surveys	Species	Waterbird Species	Introduced Species	Breeding Species	Breeding WB Species	Min Abundance	Max Abundance	Accumulative Abundance	Threatened Species
Albert Park Lake	O	3	45	22	3	6	4	1538	1678	2936	1
Barnbam Swamp	E	8	40	9	8	1	0	12	36	180	0
Braeside Park	B	34	105	46	7	16	13	32	620	1996	9
Chelsea Heights Wetland	I	12	58	23	6	3	3	14	77	474	1
Dandenong Valley Wetland	M	11	79	32	7	0	0	183	649	2236	2
Edithvale North	A	12	90	44	7	7	4	188	559	1453	8
Edithvale South	A	12	98	48	7	2	2	223	1041	2471	9
Frog Hollow Wetland	N	12	75	25	8	4	3	44	115	811	2
Hallam Valley RB Wetland	N	4	62	25	8	0	0	125	291	739	1
Heatherton Road Wetland (North)	N	13	71	23	7	10	1	63	199	914	2
Heatherton Road Wetland (South)	N	12	68	19	6	11	2	31	285	773	2
Jells Park Lake	O	5	70	26	4	13	6	297	1647	2138	2
Karkarook Park Lake	O	33	71	31	9	1	0	141	313	963	2
Kilberry Boulevard	N	11	64	25	8	5	4	42	246	811	1
Lakewood Reserve Lake	K	6	50	18	4	5	1	38	120	422	0
Police Road RB	K	12	91	30	8	8	3	106	256	1318	2
Rivergum Creek Reserve	N	12	71	33	7	8	6	225	716	1474	4
Seaford Wetlands	A	12	120	53	8	10	3	265	2113	5279	11
Tirhatuan Wetlands	K	29	64	22	5	10	5	21	150	514	2
Troups Creek Wetland	N	13	77	36	8	3	3	118	1198	2473	5
Wannarkladdin Wetland	K	12	78	34	6	8	6	71	205	1006	3

Waterways Estate Wetlands	I	9	82	31	9	7	5	153	656	1512	5
Winton Wetlands (Wantirna)	K	12	30	4	3	2	0	0	3	125	0
Woodlands Estate Wetlands	I	10	59	31	6	5	4	176	424	808	3
Wetland - ETP											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Banyan Waterhole	B	13	90	35	8	0	0	13	1342	2476	4
Boggy Creek Wetland	B	12	61	28	6	1	1	28	195	642	1
Eastern Treatment Plant	B	12	121	64	9	9	7	4752	28758	40711	17
PARCS Wetland	B	12	82	36	7	4	1	82	273	1293	5
Rossiter Lagoon	B	12	68	32	7	0	0	15	648	1361	4
Serpentine Wetland	B	12	75	31	8	1	1	50	518	2224	3
The Doughnut	B	12	46	11	5	2	1	11	66	386	2

Dandenong Catchment Summary

A total of one estuary, one riparian site and thirty-one wetlands were actively monitored in the Dandenong catchment region during the reporting period. Several of the sites were within areas of international importance, recognised as KBAs and Ramsar locations. These included the Carrum KBA and Edithvale Seaford Ramsar wetlands. The best sites for species diversity and waterbird populations was the Eastern Treatment Plant. Some key observations were recorded in this catchment, including >1% populations of Sharp-tailed Sandpiper (Hansen et al. 2022) and Blue-billed Duck (Cull, Newman & Plew 2021), while the Tawny Grassbird, which prefers warmer climates, made two recorded appearances during official monitoring.

Wetlands

The Dandenong Catchment has illustrated a wide diversity of species historically, nestled within an urban environment. Many wetlands in this region have been altered to fit needs such as stormwater management (Hale et al. 2019).

It has been this project's heartland for volunteering, with eleven constructed wetlands in the region forming the 'Birds of the Dandenong Valley Catchment surveys' where groups of volunteers from two local groups: BirdLife Melbourne and BirdLife Bayside, survey their selected sites monthly. Several of these locations have been surveyed continuously for around two decades, although several sites have been dropped over the years such as Waterford Wetlands which was sold into private hands and now serves the public as a golf course.

Delving into the constructed wetland statistics, most sites recorded between 60-80 species over the 23-24 reporting period, with similar ranges of wetland, introduced and threatened species.

Dandenong Valley Wetland (also known as Rigby's Wetland) was surveyed in four parts known as cells, and the data was amalgamated for this report. This site was particularly interesting for smaller bushland birds, recording 185 Superb Fairywren during the August 2023 survey and 68 Grey Fantail during the December survey later that year. These were MWrbm project high counts, reflecting the benefits of the wetland's established melaleuca surroundings in conjunction with its connection to both Dandenong and Corhanwarrubul Creeks.

These numbers were not replicated to the same degree across other constructed wetlands; however, these small terrestrial birds increase the species richness of several underperforming constructed wetlands with low waterbird counts. Heatherton Road South recorded 19 wetland species ranging from 31-285 individuals and Hallam Valley Retarding Basin, 25 wetland species and a range of 125-291.

Considering favourable inland conditions for waterbirds, and trends amongst wetlands in other catchment regions, several of these results may be a cause for concern (Porter et al. 2023). Only Dandenong Valley Wetland has demonstrated the capacity to support this influx, such as counts of up to 327 Eurasian Coot. Low waterbird diversity and richness is perhaps reflective of the increased vegetation these wetlands continue to accumulate, reducing available muddy habitat and standing water that many waterbirds may prefer. Heavy vegetation cover when managed appropriately does have benefits, drawing in species such as the endangered Australasian Bittern which were recorded at several wetlands in the region (Greet & Rees 2015).

While waterbird counts have not been particularly high for many sites, some constructed wetlands have been faring well, reflective of more localised nuances such as positioning near waste disposal facilities. River Gum Creek Reserve recorded up to 500 Australian White Ibis and 180 Silver Gull whilst Troups Creek Wetland recorded up to 141 Australian White Ibis and 952 Silver Gull.

Similar numbers have been reflected at several social wetlands in the Dandenong Catchment with Jells Park recording 1232 Australian White Ibis within a breeding colony, and Karkarook Park recording a maximum count of 114 Silver Gull. Albert Park also recorded a good waterbird count with a max abundance of 1678, which was not too dissimilar to Jells Park's 1647. These counts were higher than what was recorded at Ramsar listed Edithvale Wetlands.

In the Dandenong Catchment, there are several wetlands with significance at the international level. Edithvale Seaford Wetlands are listed as a Ramsar Wetland and wetlands such as the Eastern Treatment Plant situated within the former Carrum Swamp are recognised as a Key Biodiversity Area for their ongoing importance to migratory and resident waterbird populations (BirdLife Australia 2021b). Those wetlands typically excel better than others within the catchment, and this reporting period was no exception. The Eastern Treatment Plant recorded more species, wetland species, threatened species a higher max abundance than any other site in the MWrbm.

Proclaiming the importance of these wetlands were records of >1% of the Sharp-tailed Sandpiper population at Seaford and the Eastern Treatment Plant, with the latter recording over 3% of the estimated flyway population during a single survey in December 2023 (Hansen et al. 2022). Sharp-tailed Sandpiper was recently listed as threatened at the federal level, highlighting the increasing importance to appropriately manage this region (DCCEEW 2024b). Management actions such as grooming of sections of invasive Common Reed (Phragmites australis) reedbeds, providing open areas for shorebird foraging, should continue to be prioritised (Greet & Rees 2015). Another recently listed species, Latham's Snipe, recorded nationally significant numbers (>0.1% population) at Seaford with 65 individuals (Hansen et al. 2022; Weller et al. 2020). Continuing the sites importance, >1% of the vulnerable, Blue-billed Duck population was once again observed at the Eastern Treatment Plant (Cull, Newman & Plew 2021)

Despite the long list of threatened species recorded in this region's wetlands, many common waterbird species fared well, even reaching record numbers as Australia's inland conditions prove favourable for waterbirds. A site record of 56 Great Crested Grebe at the Eastern Treatment Plant highlights the growth of several waterbird species in recent years, particularly amongst Grebes and the Rallidae family (Porter et al. 2023).

Additionally, a single Tawny Grassbird was recorded at Seaford Wetlands, perhaps a result of national climatic trends. This species is exceptionally rare in Victoria, although it had been recorded at a few MWrbm wetlands previously, several of which are Sites of Biodiversity Significance (SoBS) such as Police Road Retarding Basin which also recorded the irruptive Scarlet Honeyeater, a migratory honeyeater which is becoming more regular in the region.

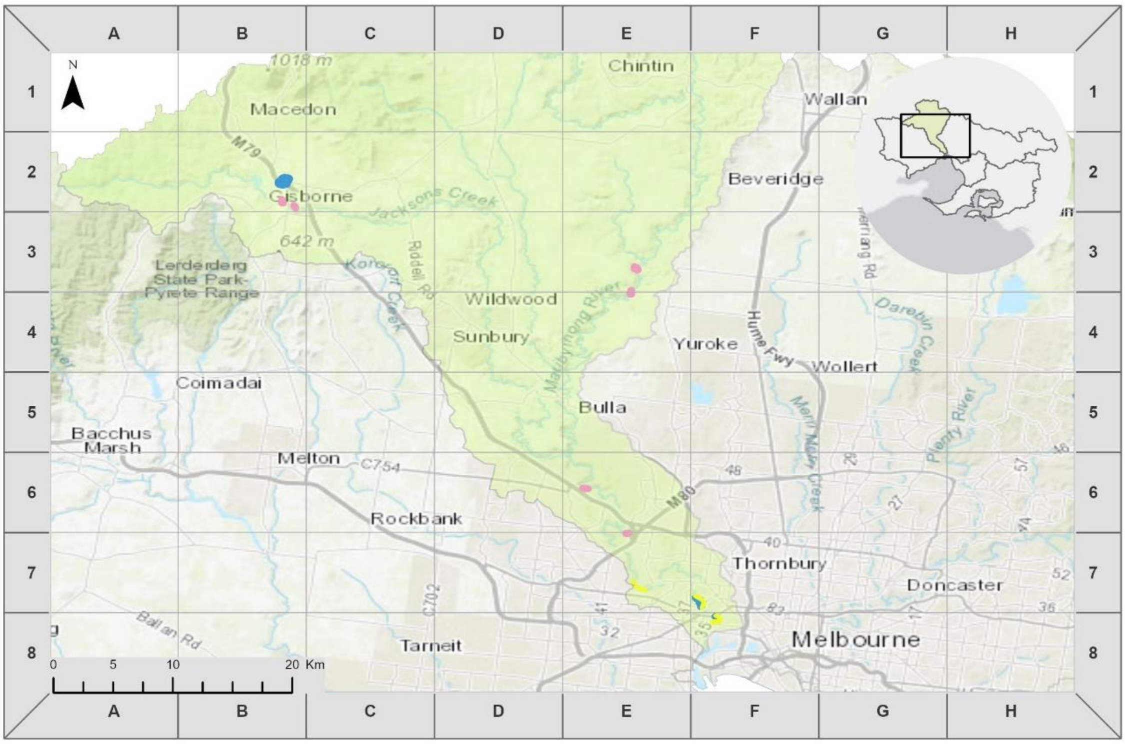
Whilst Police Road Retarding Basin performed well for species diversity, other Sites of Biodiversity Significance were typically amongst the poorer sites in the region. Winton Wetlands in Wantirna recorded a lowly 30 species, four of which were waterbirds. Lakewood Reserve and Tirhatuan Wetlands were relatively poorer than other wetlands in the region, even lacking counts of threatened bird species. Both sites have reportedly had significant investment into them with tree plantings across those wetlands transpiring in the past year, so there is promise for revival.

Estuary & Riparian

A single estuary and riparian site were surveyed during the reporting period. Following difficulties contacting a private landholder at a comparative survey location, the riparian site was only surveyed once. The estuary at Mordialloc Creek was surveyed on six occasions, amongst a heavily urbanised and industrial area.

Image credit: Pacific Black Duck – Ryan Kilgower

Maribyrnong Catchment



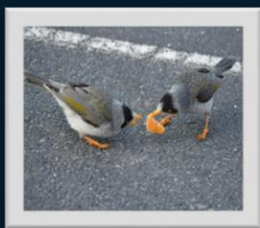
ESTUARIES	
F7	Maribyrnong Estuary
RIPARIAN	
E3	Deep Creek Works
E4	Deep Creek Rem
B2	Jacksons Creek Control
B2	Jacksons Creek Works
E7	Maribyrnong – Brimbank
E6	Maribyrnong – McNabbs
WETLANDS	
F7	Burndap Park
B2	Gisborne Racecourse Swamp
F8	Newell's Paddock

SPECIES	SURVEYS	HOURS
115	90	122

Top Stories

Noisy Neighbours

The Maribyrnong Estuary's second and third most common species were observed to be incomparable, preferring to stay away from each other. Thirty surveys recorded both Noisy Miner and White-plumed Honeyeater together, whilst 94 of the remaining 110 survey sections recorded either one or the other. Other honeyeater species and small terrestrial birds such as White-browed Scrubwren also demonstrated dislike for Noisy Miners.



Riparian Rich

A total of 74 species were recorded along riparian surveys in the Maribyrnong catchment, with a total of nine species being observed as breeding. Riparian sites in the region tended to be richer with biodiversity than several wetlands and most estuary transects.

Image credit 'Top Stories': Noisy Miner – Ryan Kilgower, Yellow Thornbill - Andrew Silcocks

Table 6: Monitoring data across all MWrbm sites in the Maribyrnong catchment

Estuary											
Site	**Sections**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Threatened Species**			
Maribyrnong River	20	7	71	22	9	16	2	1			
Riparian											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Deep Creek H11391	Works	4	19	3	2	1	0	31	64	88	0
Deep Creek Rem_H11391_392	Remnant	2	18	0	1	1	0	36	77	88	0
Jacksons Creek Downstream Control	Control	3	30	4	4	0	0	24	64	85	0
Jacksons Creek Works Site	Works	3	33	7	1	2	0	52	89	147	0
Maribyrnong River - Brimbank Park H11415	Works	3	36	3	7	6	0	103	150	240	0
Maribyrnong River - McNabbs H11413	Works	3	35	4	7	1	0	79	111	195	0
Wetlands											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Burndap Park	O	20	70	29	7	7	3	23	452	1107	2
Gisborne Racecourse Swamp	E	9	61	18	7	2	0	13	53	374	1
Newells Paddock Wetlands	I	36	83	36	9	2	2	68	499	1276	4

*Burndap Park is also known as Pipemaker's Park Wetland under the Healthy Waterways Strategy. A visit to the location would reveal that this site marked in a GIS layer is Burndap Park (or Edgewater Wetlands), whilst several hundred metres to the north, there is a small wetland known as Pipemaker's Park Wetland.

Maribyrnong Catchment Summary

A total of 1 estuary, 6 riparian sites and 3 wetlands were actively monitored across the Maribyrnong catchment region during the reporting period. The best sites for species diversity and waterbird populations included Newell's Paddock and Burndap Park. A key discovery in this catchment region was the incompatibility of honeyeater species with Noisy Miner along the Maribyrnong Estuary.

Wetlands

The Maribyrnong Catchment contains the fewest number of sites in the project. Three wetlands were monitored, with Newell's Paddock and Burndap Park* located in the inner city adjacent to the Maribyrnong Estuary and Gisborne Racecourse Swamp located in the developing area of New Gisborne in the Macedon Ranges Shire.

Newell's Paddock was the standout of the three wetlands, with a maximum wetland species abundance of 499, which was higher than the 204.3 average recorded across the previous few years between 2018/19-2021/22 (BirdLife Australia 2022a). Typical abundant waterbirds at the site include Australian White Ibis and Silver Gull, two waterbird species which fare well in urban habitats (Corben & Munro 2008). Furthermore, the ascending numbers of Eurasian Coot to the region assisted the increase.

Burndap Park similarly fared better than previously reported max averages, although one survey recorded as few as 23 individual waterbirds. This dynamic environment may be reflective of its design that is linked with the Maribyrnong Estuary. Some of the waterbird species found at Burndap Park are consistent with birds typically found in a marine setting despite being located several kilometres inland. Species such as Greater Crested Tern, Greater Crested Grebe and several species of cormorants were located amongst typical waterbird species and some rarer ones including a several records of Baillon's Crake.

Conversely, Gisborne Racecourse Swamp underperformed, with a lowly range of 13-53 waterbird individuals. Despite this, there was a respectable species richness of 61 species inclusive of 18 waterbird species, one of which was the threatened Latham's Snipe. Observers that visited Gisborne Racecourse Swamp reported that many waterbird and terrestrial species were located on adjacent farmland and a newly developed urban area to the north and were subsequently not recorded. It was also reported that debris from construction was entering the wetland.

All three wetlands recorded numerous introduced species, with reporting period MWrbm records for Common Myna and Common Blackbird at Newell's Paddock. Newell's Paddock's nine recorded introduced species was the equal highest for any MWrbm wetland during this period.

Estuary

The Maribyrnong River was surveyed in three parts for 20 sections. 1-8 ran alongside Newell's Paddock, 9-15 alongside Burndap Park and 16-20 near Cranwell Park. The earlier two sections are in industrial, heavily urbanised areas with established wetlands and minimal tree coverage. The latter region consists of a forested landscape, nestled in a residential and industrial area that does not impose on the river.

From results, the Maribyrnong River paints an average picture one would expect from an inner-city estuarine environment. The upper reaches were more species diverse due to the established forested landscape, whilst the lower reaches were poorer, yet some waterbirds such as Silver Gull fare well in these parts.

What's interesting about this river is its comparison to the nearby Yarra River Estuary regarding their most common species. Whilst Common Myna and Noisy Miner similarly dominate, Noisy Miners were recorded at a lesser rate than the Yarra, whilst White-plumed Honeyeater were reported more often, despite their near non-existence in parts of the Yarra.

There appears to be a correlation between records and absence of Noisy Miner and White-plumed Honeyeater along the Maribyrnong River, and further analyses and studies should be conducted. 30/140 surveys along transect sections recorded both species together whilst Noisy Miner were separately recorded at 48/140 and White-plumed Honeyeater 46/140. Thus, one or the other were present in 124/140 surveys. Other honeyeater species such as Red Wattlebird and New Holland Honeyeater also exhibited some degree of absence when Noisy Miner was present, although there seemed to be no correlation to absence when White-plumed Honeyeater were present, suggesting those species can coexist. Lastly, Noisy Miner were absent when White-browed Scrubwren was recorded. White-browed Scrubwren was observed at a reporting rate of 14.29% from 20 records over this reporting period.

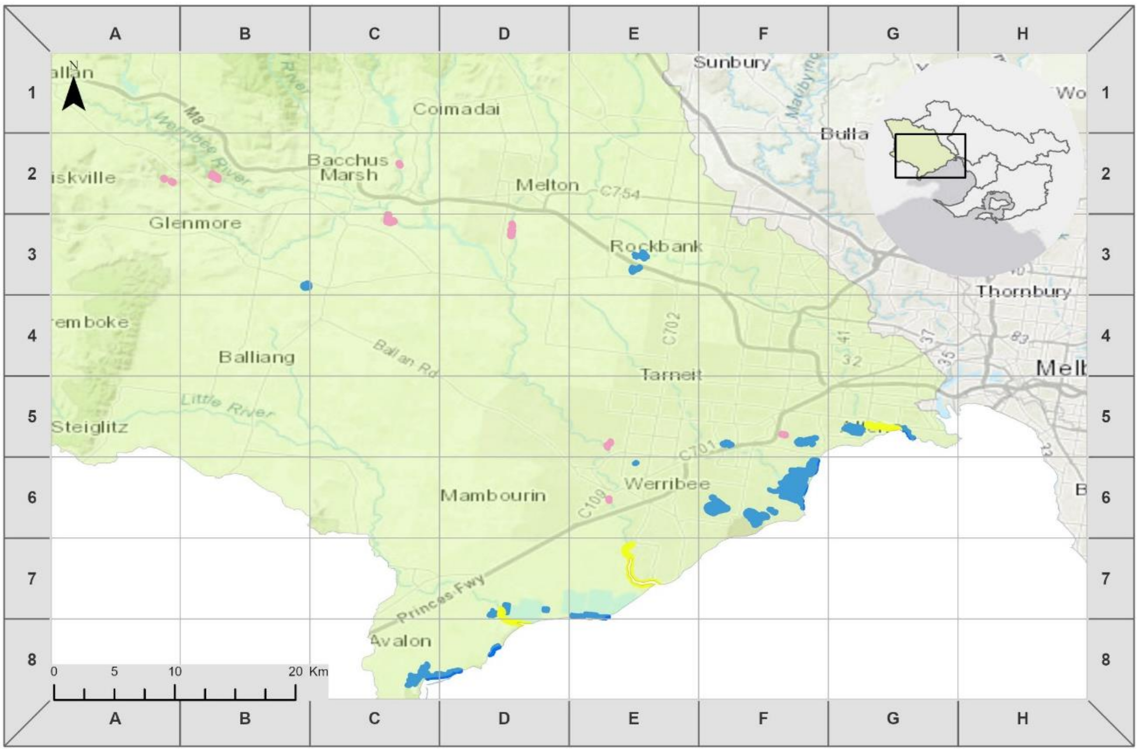
Riparian

A total of 74 species were recorded along riparian surveys in the Maribyrnong catchment, with a total of nine species being observed as breeding. Riparian sites in the region tended to be richer with biodiversity than several wetlands and most estuary transects. Species such as Yellow Thornbill and Weebill were recorded more often in the Maribyrnong catchment than in other catchments in the Port Phillip Western Port region where they are typically absent.

Some riparian sites exhibited rich species diversity, with Maribyrnong River sites at McNabbs Weir and Brimbank Park exhibiting over 30 species from three surveys, with maximum abundances >100. A works site on private property was the poorest performing site, although it was relatively respectable compared to likewise works sites in other catchment regions.

Unfortunately, two riparian sites which were funded for this project period were not surveyed as a result of a private landholder denying access to their property.

Werribee Catchment



ESTUARIES	
G5	Kororoit Creek
D8	Little River
E7	Werribee River
RIPARIAN	
A2	Ingliston Creek Rem
A2	Ingliston Creek Works
F5	Laverton Creek Works
C2	Pyrites Creek Rem
D3	Toolern Creek Works
C3	Werribee River – Hopetoun
E5	Werribee River – Riversdale
E6	Werribee River Rem – Doolan
B2	Werribee River Rem – Pentland
WETLANDS	
F6	Cheetham Saltworks
G5	Cherry Lake
F6	Cunningham Swamp North
E3	Deans Marsh (East)
E3	Deans Marsh (West)
E6	Heathdale Glen Orden
G5	Jawbone/Paisley Challis
B3	Jensz Swamp
F5	Laverton RAAF Swamp
F6	RAAF Lake
F6	Spectacle Lake
E3	Troups Road Swamp
F5	Truganina Swamp
WETLANDS – WTP	
E7	5W Ponds 9-11
E7	35E Pond 8 & 9
D7	85WC Pond 9
E7	270S Borrow Pit
D7	Paradise Road
D8	Ponds 28 & 29
C8	Summer Ponds 1 & 2
C8	T-Section
D7	Walshes Lagoon 1 & 6
D8	Western Lagoons

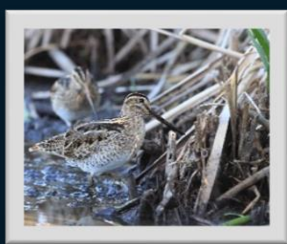
SPECIES	SURVEYS	HOURS
179	334	676

Top Stories

Feeding the 5000

Cherry Lake underwent a transformation with native plant Red Watermilfoil (*Myriophyllum verrucosum)* covering a proportion of the lake, inviting perfect conditions for waterbirds. As a result, a survey in March concluded with a count of 5090 individual birds, including 2842 Eurasian Coot, 431 Black Swan and 172 of the threatened Australasian Shoveler. This is in stark contrast to March 2022 when a pollution event heavily impacted the lake, causing mass casualties of aquatic life.

National Significance Uncovered



Deans Marsh (East & West) were known as key locations for Growling Grass Frog, yet little was known until this reporting period about the state of its birds. Astonishingly, 82 Sharp-tailed Sandpipers were recorded on the eastern wetland in December, whilst 21 Latham's Snipe were recorded in January on the western. Along with 32 Latham's Snipe recorded at nearby Troups Road Wetland in February reveals that this area meets criteria to be listed as a nationally significant migratory shorebird site.

Image credit 'Top Stories': Cherry Lake – Ryan Kilgower, Latham's Snipe - Andrew Silcocks

Table 7: Monitoring data across all MWrbm sites in the Werribee catchment

Estuaries											
Site	**Sections**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Threatened Species**			
Kororoit Creek	10	6	79	42	8	8	2	6			
Little River	14	7	75	49	4	1	0	8			
Werribee River	25	6	87	43	10	0	0	5			
Riparian											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Ingliston Creek Rem9_H12046	Remnant	1	17	0	0	0	0	44	44	44	0
Ingliston Creek H12046	Works	1	12	0	0	0	0	39	39	39	0
Laverton Creek H11427	Works	4	31	8	6	0	0	48	95	175	0
Pyrites/Coimaidai Creek, Long Forest NCR Rem_H11360	Remnant	6	55	6	5	0	0	54	145	310	0
Toolern Creek H11360	Works	6	31	3	6	2	0	43	115	218	0
Werribee River - Hopetoun Park H11412	Works	6	37	5	6	0	0	2	83	149	0
Werribee River - Riversdale Drive H11410	Works	5	46	9	10	5	1	151	166	395	1
Werribee River – Doolan St Rem_H11410_427	Remnant	5	29	3	6	2	0	22	72	105	0
Werribee River - Pentland Hills Rem_H11412	Remnant	2	27	4	1	1	0	54	92	116	0
Wetlands											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Cheetham Saltworks	D	8	74	47	7	0	0	198	3933	5490	9
Cherry Lake	K	19	111	47	9	14	6	270	4774	6616	8
Cunninghams Swamp	I	10	69	36	8	7	3	69	295	932	6
Deans Marsh (East)	I	12	81	38	9	6	4	194	910	2150	6
Deans Marsh (West)	E	12	74	33	9	7	3	92	315	1424	6
Heathdale Glen Orden Wetland	L	11	58	24	8	9	4	26	130	728	2
Jawbone Reserve/Paisley Challis	I	22	99	54	9	7	5	80	1295	3362	7
Jensz Swamp	I	5	29	2	8	3	1	13	47	395	0
Laverton RAAF Swamp	I	14	56	35	6	1	1	79	522	1093	4
RAAF Lake	A	10	46	24	4	0	0	23	403	1126	4
Spectacle Lake	A	10	32	8	6	1	1	55	75	343	0

Troups Road Swamp	E	13	52	31	7	5	5	224	369	865	5
Truganina Swamp	K	39	111	51	9	3	1	79	1069	3217	10
Wetlands - WTP											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Borrie 28&29	A	12	45	33	3	0	0	51	1839	3359	5
Habitat Ponds	A	12	66	40	2	0	0	31	2177	5844	7
Paradise Pond	A	11	41	33	2	1	1	362	2585	5763	4
Summer 1	A	12	38	30	2	0	0	100	2813	5574	2
Summer 2	A	12	53	37	2	0	0	202	5245	7464	7
T-Section	A	12	77	55	4	0	0	929	3182	6261	13
Walshes	A	12	42	29	1	0	0	48	1349	2705	3
Western Lagoons	A	11	69	42	5	0	0	131	821	2116	10

Werribee Catchment Summary

A total of 3 estuaries, 9 riparian sites and 21 wetlands were actively monitored across the Werribee catchment region during the reporting period. The Werribee Catchment is an important region for birds, with two sites recognised internationally as Key Biodiversity Areas (KBA) for their waterbird species and abundances whilst both are part of the wider Port Phillip Bay and Bellarine Peninsula Ramsar Site (DELWP 2018). The KBA sites are Western Treatment Plant and Cheetham Altona. These sites made up the best sites for species diversity and overall waterbird populations. Some key moments across this catchment included findings of significant populations of Latham's Snipe at Deans Marsh and Troups Road Wetland and high waterbird populations at ponds at the Western Treatment Plant.

Wetlands

Five wetlands monitored for the project were monitored within the Cheetham and Altona KBA: Spectacle Lake, RAAF Lake, Cheetham Saltworks, Truganina Swamp and Jawbone Reserve (also known as Paisley Challis under the Healthy Waterways Strategy). Cherry Lake is adjacent to, but not within the KBA. Four sites recorded significant observations of waterbird species, abundances and threatened species, whereas counts for Spectacle Lake and RAAF Lake were volatile.

Spectacle Lake and RAAF Lake are located within the Point Cook Coastal Park and there were noteworthy issues with safety and public decency. This park is arguably the most uncomfortable in Melbourne to visit, and a decision was made not to send volunteers there.

Nearby Cheetham Wetlands recorded MWrbm reporting period records of migratory shorebirds such as Red-necked Stint and Double-banded Plover, the latter with an observation of approximately 0.6% of the global population (BirdLife Australia 2016). Nine threatened species were recorded including Common Greenshank. Despite the quality return of species, the maximum abundance of 3933 waterbirds falls short of expectations for the site's importance and historical output (Wood 2024).

Jawbone Reserve and Truganina Swamp both recorded better returns than previous years, with wetland species and maximum abundance fairing higher than the block 4 period of 2018/19-2021/22. Despite this positive recovery, waterbird numbers are still lower than their average peak around a decade ago (BirdLife Australia 2022a).

Unlike those two sites, Cherry Lake excelled beyond expectations and surpassed past observations in recent decades. A survey at the site in March 2024 recorded 4774 individual waterbirds including 172 of the threatened Australasian Shoveler. Moreover, high Eurasian Coot, Black Swan and Hoary-headed Grebe numbers were recorded alongside unusual records for the MWrbm region such as Magpie Goose. From appearance, this unusual boom was a result of Red Watermilfoil, a wetland plant, providing essential feeding space for these waterbirds. The plant covered a portion of the lake and was distinctly red. Other localised events at the time may have had an influence on this boom through forced movement, with the Australian Grand Prix at Albert Park and wetlands in Western Victoria drying due to low rainfall, such as Lake Goldsmith near Beaufort, where over 100,000 waterbirds had been gathering over the 2023/24 summer (Birdata 2024).

While these sites have been recognised for their significance for a long period of time, some sites in the region had gone unnoticed until recently. Deans Marsh (West and East) and Troups Road Wetland in Rockbank were rarely surveyed prior to this reporting year, despite anecdotal evidence supporting the sites' significance for Latham's Snipe, Australasian Bittern and waterbird breeding events (Cook et al. 2013). The area has been developed, urbanised, and the wetlands' existence threatened by multiple construction projects. Surveys from the MWrbm during this reporting period have uncovered that the three sites meet criteria for national significance as a shorebird site under the guidelines of the Australian National Directory of Important Migratory Shorebird Habitat (Weller et al. 2020), with records of Latham's Snipe >0.1% population at both Deans Marsh (West) and Troups Road Swamp whilst Sharp-tailed Sandpiper were recorded at >0.1% population at Deans Marsh (East) (Hansen et al. 2022). Both species are international migratory shorebirds which are nationally threatened, listed as vulnerable (DCCEEW 2024). Furthermore, a critically endangered Black Falcon was recorded on several occasions at Deans Marsh, a rare species for the Port Phillip and Western Port region with a regional reporting rate of 0.12% over the reporting period.

Even rarer, a migratory Wood Sandpiper was recorded at Cunningham's Swamp North, a wetland that has been altered as a result of development. Small numbers of a diverse array of crakes, shorebirds and waterbirds were recorded at that site, although overall numbers were quite average for the region, placing it on par with sites such as Heathdale Glen Orden Wetlands and Laverton RAAF Wetland.

On the lower end, Jensz Swamp registered few waterbirds, typically attributed to the wetland being dry for the best part of the last two decades. High counts for Brown and Stubble Quail were recorded there. White-fronted Chat were recorded breeding at the wetland, with a decent sized population for the region observed.

Image credit: Ryan Kilgower (Deans Marsh West – top; Deans Marsh East - bottom

Wetlands - WTP

The Western Treatment Plant (WTP) is a unique location, operating as both an active sewage treatment facility as well as a Ramsar listed wetland with large populations of waterbird species (DEPI 2014). It is a popular birdwatching destination, with over 2,000 local birdwatchers permitted to access it, and it is attracting a growing number of international and interstate visitors (Webb 2024).

BirdLife Australia and our volunteers have been actively monitoring several ponds and wetlands at the Western Treatment Plant for over a decade, gathering standardised data to assess long-term trends. During this reporting region, 29 ponds were surveyed, although data was amalgamated at comparative sites into a single survey site, generating 8 survey locations.

Table 8: Systems of the Western Treatment Plant

System	Cells	Category For Assessment
Habitat Lagoons	Lake Borrie Ponds 28 & 29	Lake Borrie Ponds 28 & 29
	T-Section Lagoon Ponds 1, 2, 3, 4, 5, 6, 7	T-Section
	Western Lagoon Ponds 3, 4, 5, 6, 7, 8, 9, Q4	Western Lagoons
Habitat Ponds	WTP - 35E Ponds 8 & 9 WTP - 270S Borrow Pit WTP – 5W Ponds 9, 10, 11 WTP – 85WC Pond 9	Habitat Ponds
	Austen Road Pond 1 (Summer Pond 1)	Summer Pond 1
	Austen Road Pond 2 (Summer Pond 2)	Summer Pond 2
	Paradise Road Pond	Paradise Road Pond
Operational Pond	Walshes Ponds 1 & 6	Walshes

Several ponds at the Western Treatment Plant were relatively poor for species diversity in the context of the MWrbm, although by design, they sustained a wide diversity of waterbirds. T-section Ponds was the most diverse, with 55 waterbird species including 13 listed threatened species.

Threatened species continue to highlight the importance of the Western Treatment Plant, particularly threatened migratory waders such as Black-tailed Godwit, Bar-tailed Godwit, Curlew Sandpiper and Common Greenshank which were typically rarely observed during this reporting period across the Port Phillip and Western Port region.

Waterbirds continued in great numbers, although several ponds were dynamically different throughout the months as demonstrated by the wide range between maximum and minimum counts. A count of 4,300 Australian Shelduck at Summer Pond 2 led the way for high waterbird counts.

Considering only a subset of ponds were surveyed, several species were missed which were recorded at the Western Treatment Plant during this period. Over the recent 2024 winter, 10 Orange-bellied Parrots were recorded and furthermore, a vagrant American Golden Plover was recorded at 270S Borrow Pits, although its stay was brief and was subsequently missed by a matter of days from the April 2024 monthly survey.

Estuary

Three estuaries were surveyed in the Werribee Catchment, the Kororoit Creek, Little River and Werribee River, with all three located amongst important areas for biodiversity.

The Werribee River survey was surveyed via boat, hired from and captained by Mornington Boat Hire. The Werribee River recorded the second most species for any estuary after the Bass River, another watercraft-based estuary survey. It was additionally second to the Little River for wetland species. The Werribee River recorded more introduced species than any other location in the MWrbm with 10, only missing Scaly-breasted Lorikeet and Song Thrush on the list. It was abundant with raptors and supported threatened raptor species including Little Eagle and White-bellied Sea-Eagle.

Likewise, the Little River also supported populations of raptors, being at the heart of Melbourne Water's Western Treatment Plant. The Little River, to no surprise, recorded the largest variety of waterbird species out of the 14 estuary surveys.

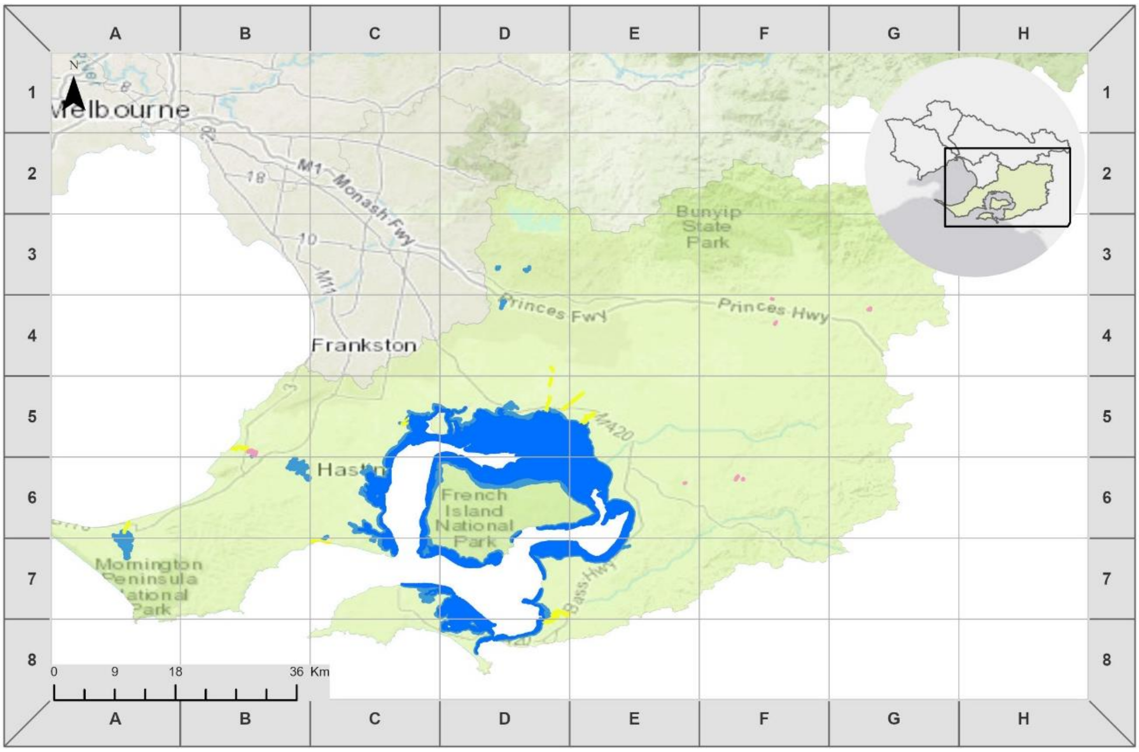
Interestingly, Kororoit Creek was third for waterbird species richness, placing all three Werribee Catchment estuaries on the podium for waterbird species diversity.

Riparian

Nine riparian sites were surveyed in the Werribee Catchment, covering a diversity of habitat. One of the more astounding records for the MWrbm was observed along the Werribee River at Riversdale Drive. A flock of 48 Blue-winged Parrots (or 0.5% global population) perched on two stags metres away from suburban houses, which is uncharacteristic for the threatened species (Holdsworth et al. 2021). Five surveys at that location recorded an individual abundance of all species between 151-166, providing the highest average abundance for all riparian locations.

Pyrites Creek provided some quality records of resident species which are rare for the Port Phillip Western Port region. Brown Treecreeper (0.19% reporting rate) and Yellow-tufted Honeyeater (0.16% reporting rate), were located there, providing a refuge for two species which have declined around Melbourne and across Victoria (MacNally & Bennett 1997). The two-hectare site was so species rich, 55 species were recorded there, nine more than Werribee River at Riversdale Drive, and just three short of the least species diverse estuary.

Western Port Catchment

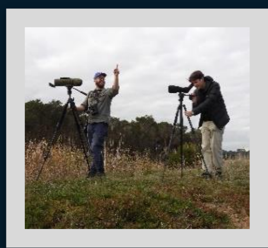


ESTUARIES	
B5	Balcombe Creek
D7	Bass River
E5	Bunyip River
D5	Cardinia Creek
A6	Chinamans Creek
C7	Merricks Creek
C5	Watsons Creek
E5	Yallock Creek
RIPARIAN	
B5	Briars - Claypit Creek
B5	Briars – Home Creek
B5	Briars – Stockley Creek
E6	Adams Creek Rem
F4	Bunyip River Works
F4	Cannibal Creek Rem
F6	Little Lang Lang (East)
F6	Little Lang Lang (West)
G4	Tarago River Works
WETLANDS	
D4	Baillieu Wetland
D3	Beaconsfield Reservoir
B6	Bittern Reservoir
B5	Briars Wetland
C7	Coolart Wetlands
B6	Devilbend Reservoir
D3	Grasmere Creek Wetland
C7	Rhyll Swamp
A7	Tootgarook Swamp
C5 to E7	Western Port Bay

SPECIES	SURVEYS	HOURS
181	234	846

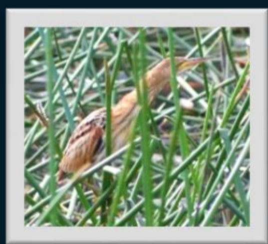
Top Stories

Celebrating 50 years



The Western Port Survey, which was recently added to the MWrbm following the amalgamation of the Port Phillip Western Port CMA and Melbourne Water, celebrated 50 years of ongoing monitoring. This project has supplied data which has supported Western Port's Ramsar and Key Biodiversity Area listings. The project continues to attract dozens of volunteers keen to get involved.

Bittern at Bittern



An Australian Little Bittern was recorded at the appropriately named Bittern Reservoir in February. Whilst its relative the critically endangered Australasian Bittern was not recorded there, there were a few sightings of these birds at nearby Tootgarook Swamp and Chinamans Creek estuary.

Image credit 'Top Stories': Western Port Volunteers – Alison Ray, Australian Little Bittern – Ryan Kilgower

Table 8: Monitoring data across all MWrbm sites in the Western Port catchment

Estuary								
Site	**Sections**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Threatened Species**
Bass River	20	6	95	37	7	0	0	8
Yallock Creek	20	6	80	35	7	0	0	7
Chinamans Creek	10	6	64	29	5	0	0	3
Balcombe Creek	10	6	58	22	4	4	0	3
Cardinia Creek	20	6	68	20	8	0	0	1
Watsons Creek	13	6	70	19	5	0	0	4
Merricks Creek	13	6	68	14	5	0	0	0
Bunyip River	20	6	62	11	8	2	0	2

Riparian											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Briars - Claypit Creek	Works	4	9	0	0	1	0	19	28	40	0
Briars - Home Creek	Works	4	20	5	3	0	0	38	48	85	1
Briars - Stockley Creek	Works	4	25	1	4	0	0	20	48	83	0
Adams Creek Rem_H10784	Remnant	2	21	0	0	0	0	15	72	75	0
Bunyip River H11400	Works	4	32	2	1	0	0	47	58	116	0
Cannibal Creek Rem_H11400_369	Remnant	4	34	0	2	0	0	21	81	139	0
Little Lang Lang River - East Branch H10784	Works	2	12	0	1	1	0	33	33	57	0
Little Lang Lang River - West Branch H10784	Works	4	26	2	6	0	0	25	89	137	0
Tarago River H11369	Works	3	18	5	3	0	0	18	35	59	1

Wetlands											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Baillieu Wetlands	I	21	105	45	8	1	0	135	1045	1979	6
Beaconsfield Reservoir	I	12	62	8	1	0	0	14	27	260	1
Bittern Reservoir	I	8	73	29	3	0	0	26	623	1588	5
Coolart Lagoon	I	30	108	43	6	16	7	28	237	1164	6
Devilbend Reservoir	I	19	117	43	6	2	1	23	5465	7883	7
Grasmere Creek Wetland	I	47	113	33	6	6	6	19	305	1508	4

Rhyll Swamp	H	4	51	25	1	0	0	34	90	225	4
The Briars	I	6	53	20	3	4	3	26	158	609	1
Tootgarook Swamp	I	8	79	36	7	1	1	104	312	794	4

Western Port Catchment Summary

The Western Port catchment is characterised by farmland across most of the southern range of the catchment that wraps around Western Port Bay, with urban sprawl to the north and further north, the Southern Ranges. A total of 8 estuaries, 9 riparian sites and 9 wetlands were actively monitored across the Western Port catchment region during the reporting period, with four coordinated waterbird surveys of high tide shorebird roosts at Western Port Bay. Several of the sites are of international importance, recognised as KBAs and Ramsar sites. These include the Ramsar listed Western Port Bay and KBA listed Devilbend Reservoir. The best sites for species diversity and waterbird populations included Devilbend Reservoir, Coolart Lagoon, Baillieu Wetlands and Grasmere Creek Wetland. Some key moments in this region included the celebration of 50 years of the Western Port Survey and several sightings of two species of bittern.

Wetlands

Nine wetlands were surveyed across the Western Port Catchment. Several sites broke the 100 species barrier for the reporting period through Devilbend Reservoir, Grasmere Wetland, Coolart Wetlands and Baillieu Wetlands.

Grasmere and Baillieu Wetlands, both located in Berwick, have been surrounded by development in recent years as Melbourne's suburbs sprawl further outwards. Both sites continue to retain species typically found in rural regions, with Satin Bowerbird recorded at Grasmere Wetland and Cattle Egret at both. Both sites also recorded Eastern Koel, a migratory cuckoo which has been expanding its range further south in recent years. Grasmere Wetland was the only location in the MWrbm to record a Powerful Owl.

On the Mornington Peninsula at Coolart Wetlands, a team of volunteers recorded breeding events for 16 species, 7 of which were waterbird species. The 16 was the highest for any wetland across the MWrbm, and included the threatened Blue-billed Duck. Abundances of waterbirds were, however, low relative to wetlands across the MWrbm (28-237). Similarly, Tootgarook Swamp also recorded low numbers of waterbirds, some of which were threatened including Australasian Bittern.

Speaking of bitterns, Bittern Reservoir recorded a solitary Australian Little Bittern. Nearby reservoir Devilbend Reservoir, which is a Key Biodiversity Area, did not, but recorded a catchment region high of 117 species including 7 threatened species. A maximum abundance of 5465 and accumulative abundance of 7883 highlight the importance of the site. Yet it failed to reach the important key target of 1% Blue-billed Duck population for which its KBA status relies (Cull, Newman & Plew 2021; BirdLife International 2024).

On the lower end of noteworthiness, Beaconsfield Reservoir, The Briars and Rhyll Swamp reported few birds, particularly amongst waterbird species. Four threatened species were however observed at Rhyll Swamp including Musk Duck.

Estuary

Eight estuaries were monitored in the Western Port Catchment, with two of estuaries monitored via boat (Bass and Watsons), and the others on foot. Six of the estuaries deposit into Western Port Bay, while the other two (Balcombe and Chinamans) are connected to Port Phillip Bay.

Each of the estuaries had their challenges and were typically more difficult to complete compared to other estuaries within the project. Boat based surveys required appropriate tides to launch and return the boat. The Port Phillip Bay based estuaries were located in urban areas with established paths ensuring relatively simple access to the estuaries. However, several of the land based surveyed at Western Port Bay, namely Bunyip, Cardinia and Yallock navigated areas of private and public property, heavily vegetated scrubland and weedy grasslands. Whilst they were completed in a timely manner and could be navigated within the appropriate timeframe, the final Cardinia Creek Estuary survey had a setback following a direction from Melbourne Water to steer clear of the area. This was a consequence of an allegedly aggressive member of public who allegedly threatened violence towards Melbourne Water employees at Koo Wee Rup. The final survey was completed in August 2024 and was included within this report as part of the 23-24 reporting period.

The trends of results from the estuary surveys were quite diverse. Balcombe Creek was the poorest performing estuary across the MWrbm for species seen, whilst Bunyip River, Merricks Creek and Watsons Creek all recorded <20 waterbird species. No waterbird species were observed breeding at any estuary in this region.

While waterbird species were sparse, several of these estuaries recorded small terrestrial birds with high reporting rates. Brown Thornbill was the most dominant species at Balcombe, Bunyip, Watsons and Yallock Estuaries, while Superb Fairywren was reported at a higher rate than any other species at Bass and Cardinia Estuaries. Honeyeaters such as Little and Red Wattlebirds and Yellow-faced Honeyeater were prevalent throughout the estuaries across the Mornington Peninsula.

Threatened species were recorded at all but Merricks Creek. A single Australasian Bittern at Chinamans Creek and Far Eastern Curlew at Yallock Creek provided the highlights. A cohort of Blue-winged Parrots were recorded on two surveys of the Bass River during autumn, underlining its importance for this threatened migratory parrot species.

The Bass River was particularly interesting, considering 95 species were recorded there, the most of any estuary, although it recorded fewer waterbirds compared to the three estuaries in the Werribee Catchment. This is perhaps a consequence of the various land uses and vegetation types along the estuary. Extensive patches of Shrubby Glasswort saltmarsh support regionally rare species such as Southern Emuwren, whilst grazed marshy farmland, grassland and lightly forested areas offer several diverse communities of birds a place to inhabit.

Riparian

Nine riparian sites were surveyed across a diversity of environments. Three sites at the Briars had been monitored for multiple years for this project, whereas the other six sites were part of the ROMP project and were located amongst a mixture of farmland to regenerated bushland.

Threatened Latham's Snipe were recorded along the sites at Tarago River and Briars – Home Creek. Apart from these records, typical species were recorded across these sites.

Western Port Survey

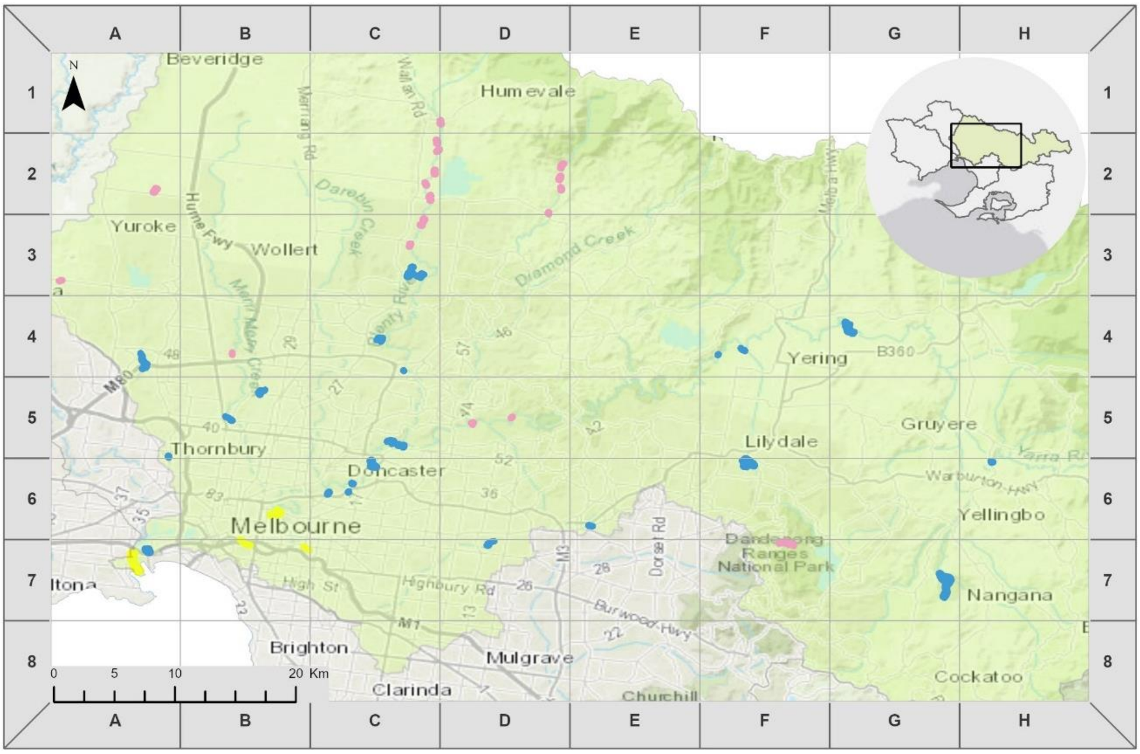
The Western Port Survey was recently added to the MWrbm following the merger of Port Phillip and Western Port Catchment Management Authority and Melbourne Water. The Western Port Survey has a rich history, recently celebrating 50 years of volunteers counting key high tide shorebird roosts across Western Port Bay. Unlike other MWrbm surveys, it is a waterbird count only. As such, a decision was made to separate the data from the overall project in this report and prepare it separately in (Table 9).

Table 9: Survey results from the Western Port survey. Counts are accumulated from several dozen surveys at high tide shorebird roost sites.

Species	Nov-23	Feb-24	May-24	Jun-24	Species	Nov-23	Feb-24	May-24	Jun-24
Asian Gull-billed Tern	0	4	1	1	Hardhead	14	0	17	2
Aust Gull-billed Tern	137	2	30	45	Hoary-headed Grebe	30	0	11	117
Aust Pied Oystercatcher	201	379	481	495	Hooded Plover	1	3	6	5
Australasian Darter	0	0	2	1	Little Black Cormorant	93	29	65	50
Australasian Grebe	7	1	4	6	Little Egret	1	4	2	9
Australian Hobby	1	1	0	0	Little Pied Cormorant	272	280	470	401
Australian Pelican	120	264	295	155	Masked Lapwing	598	702	645	761
Australian Raven	0	0	0	8	Musk Duck	10	9	47	75
Australian Shelduck	50	9	10	23	Nankeen Kestrel	0	2	0	2
Australian White Ibis	603	1023	546	456	Nankeen Night-Heron	0	6	9	12
Australian Wood Duck	20	28	25	49	Pacific Black Duck	71	35	202	108
Banded Stilt	2	0	0	0	Pacific Golden Plover	50	0	0	0
Bar-tailed Godwit	230	341	56	119	Pacific Gull	54	167	233	215
Black Falcon	0	1	0	0	Peregrine Falcon	1	2	0	4
Black Swan	3002	3734	4547	829	Pied Cormorant	116	161	60	95
Black-faced Cormorant	0	1	5	2	Purple Swamphen	6	20	21	8
Black-shouldered Kite	3	2	6	7	Red Knot	33	7	12	4
Blue-winged Parrot	5	0	54	1	Red-capped Plover	43	17	74	91
Brown Falcon	2	0	2	2	Red-necked Avocet	48	0	0	0
Brown Goshawk	0	1	2	3	Red-necked Stint	5453	5809	202	308
Brown Songlark	1	0	0	0	Royal Spoonbill	48	135	95	112
Cape Barren Goose	351	425	114	88	Ruddy Turnstone	0	4	0	0
Caspian Tern	51	62	62	61	Sacred Kingfisher	0	0	0	1
Chestnut Teal	1237	444	557	682	Sharp-tailed Sandpiper	455	368	0	0
Collared Sparrowhawk	0	0	0	1	Silver Gull	1633	3522	1440	660
Common Greenshank	16	27	0	0	Sooty Oystercatcher	11	22	27	17
Crested Tern	30	123	115	17	Straw-necked Ibis	174	0	28	17
Curlew Sandpiper	1861	1028	11	1	Stubble Quail	9	0	0	0
Double-banded Plover	1	1	500	711	Swamp Harrier	12	13	8	10
Eastern Curlew	185	316	50	43	Teal spp	0	0	0	220
Eastern Great Egret	65	112	152	20	Terek Sandpiper	0	0	3	0
Eurasian Coot	33	35	30	32	Wedge-tailed Eagle	8	2	2	8
Fairy Tern	13	6	0	0	Whimbrel	7	7	1	0
Golden-headed Cisticola	2	0	3	2	Whiskered Tern	227	0	0	0
Great Cormorant	2	13	2	16	Whistling Kite	4	2	7	4
Great Crested Grebe	0	0	1	8	White-bellied Sea-Eagle	4	1	3	7
Greater Sand Plover	0	0	1	0	White-faced Heron	386	390	591	220
Grey Teal	401	302	868	604	White-fronted Chat	56	50	39	0
Grey-tailed Tattler	1	0	0	0	Yellow-billed Spoonbill	0	0	0	2
					SUM	**18561**	**20454**	**12852**	**8033**

Image credit: Ryan Kilgower (image of Andrew Silcocks - left), Andrew Silcocks (image of Australian Pelicans – right)

Yarra Catchment



ESTUARIES	
B7	Yarra River
RIPARIAN	
A2	Malcolm Creek Works
B4	Merri Creek Works
A3	Moonee Ponds Creek Rem
F7	Olinda Creek Control
F7	Olinda Creek Staged Removal
F7	Olinda Creek Willow Removal
C2	Plenty River (Sites 1-10)
D2	Running Creek (Sites 11-16)
D5	Yarra River Rem
D5	Yarra River Works
WETLANDS	
C6	Annulus Billabong
C5	Banyule Flats Billabong
C5	Birrarrung Billabong (East)
C5	Birrarrung Billabong (West)
D7	Blackburn Lake
C6	Bolin Bolin Billabong
C6	Burke Road Billabong
B5	Coburg Lake
G7	Cockatoo Creek Floodplain
G4	Domaine Chandon Billabong
B5	Edwardes Lake
C3	Hawkstowe Wetlands
C6	Hays Paddock Wetland
A4	Jacana Wetland
C4	Kalparrin Gardens
F6	Lillydale Lake
C3	Morang Wetlands
A5	Queens Park
E6	Ringwood Lake
F4	Spadoni Reserve
C4	Tanunda Wetlands
A7	Westgate Park
C6	Willsmere Billabong
C3	Wilton Vale Marsh
H6	Yarra Bridge Streamside
F4	Yering Backswamp

SPECIES	SURVEYS	HOURS
167	429	1,141

Top Stories

Miner Manor

The dominant Noisy Miner was recorded regularly across the Yarra catchment, with a reporting rate of 78.27% for wetlands and 89.29% for the Yarra Estuary. Encouragingly, Noisy Miner were not recorded from 15 surveys at Cockatoo Creek Floodplain Wetland where the critically endangered Helmeted Honeyeater, a subspecies of Yellow-tufted Honeyeater, can be found.

Growing Network

Interest in the MWrbm in this region has been growing in recent years, aiding the increase of volunteers this project has seen. Individuals from across the catchment and friends groups have been getting involved with the surveys, with 359 standardised wetland surveys completed during this reporting period.

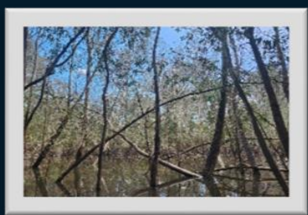


Image credit 'Top Stories': Noisy Miner – Andrew Silcocks, Billabong – Ryan Kilgower

Table 10: Monitoring data across all MWrbm sites in the Yarra catchment

Estuary											
Site	**Sections**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Threatened Species**			
Yarra River	20	7	69	27	7	12	2	4			
Riparian											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**
Malcolm Creek H11777	Works	2	18	10	3	0	0	24	179	188	0
Merri Creek H11390	Works	2	13	0	4	0	0	26	35	58	0
Moonee Ponds Creek Rem_H11413_15	Remnant	3	27	1	2	0	0	19	57	74	1
Olinda Creek, control	Control	2	21	0	2	1	0	28	45	57	0
Olinda Creek, staged removal	Works	2	15	0	1	0	0	15	119	127	0
Olinda Creek, Willow removed	Works	2	19	0	1	0	0	40	46	68	0
Plenty River Site 1	Works	3	30	5	3	1	0	38	76	95	0
Plenty River Site 2	Works	3	32	5	2	0	0	37	74	96	0
Plenty River Site 3	Works	4	24	2	1	0	0	21	39	64	0
Plenty River Site 4	Works	3	34	4	2	0	0	49	77	123	1
Plenty River Site 5	Works	2	16	1	1	0	0	21	36	45	0
Plenty River Site 6	Works	3	25	0	3	0	0	46	59	100	0
Plenty River Site 7	Works	3	17	3	2	0	0	16	25	40	0
Plenty River Site 8	Works	3	23	2	4	0	0	23	64	78	0
Plenty River Site 9	Works	3	26	3	5	0	0	18	55	72	0
Plenty River Site 10	Works	3	24	3	3	1	0	37	50	83	0
Running Creek Site 11	Works	3	27	1	1	0	0	31	48	82	1
Running Creek Site 13	Works	3	27	1	1	1	0	49	70	111	0
Running Creek Site 15	Works	3	34	0	1	0	0	51	66	120	0
Running Creek Site 16	Works	3	37	1	2	1	0	65	78	136	1
Yarra River H11397	Works	4	26	6	3	0	0	30	84	124	1
Yarra River REM_H11397	Remnant	4	34	0	0	1	0	32	66	101	0
Wetlands											
Site	**Category**	**Surveys**	**Species**	**Waterbird Species**	**Introduced Species**	**Breeding Species**	**Breeding WB Species**	**Min Abundance**	**Max Abundance**	**Accumulative Abundance**	**Threatened Species**

Annulus Billabong	J	17	57	15	2	3	0	14	55	383	1
Banyule Flats Billabong	J	9	64	17	2	3	1	16	33	544	0
Birrarrung Billabong East	J	9	48	17	4	5	3	20	63	331	1
Birrarrung Billabong West	J	9	55	17	3	5	3	22	61	341	1
Blackburn Lake	I	12	48	11	4	13	3	11	38	473	1
Bolin Bolin Billabong	J	21	65	17	3	7	4	12	51	538	0
Burke Road Billabong	J	17	39	7	3	0	0	0	9	205	0
Coburg Lake	O	10	49	19	5	6	4	164	571	1125	0
Cockatoo Creek Floodplain Wetland	H	15	88	16	5	4	0	11	24	586	2*
Domaine Chandon Billabongs	J	8	84	26	4	4	3	133	325	1300	1
Edwardes Lake	O	18	60	27	6	8	5	57	310	730	2
Hawkstowe Wetlands	P	8	34	18	2	4	3	60	107	307	1
Hays Paddock Wetland	O	9	38	14	4	3	1	12	18	120	0
Jacana Wetlands	F	44	106	33	9	10	2	55	268	1690	4
Kalparrin Gardens Lake	O	12	34	13	1	3	2	29	57	196	1
Lillydale Lake	O	15	71	23	5	10	4	73	223	940	4
Morang Wetlands	H	6	87	34	6	9	7	28	170	603	5
Queen's Park Wetland	O	21	35	12	6	6	4	29	187	546	0
Ringwood Lake	O	11	38	11	2	7	2	16	79	327	0
Spadonis Reserve	J	7	70	17	4	6	0	17	37	723	1
Tanunda Wetlands	I	18	86	29	8	7	5	34	141	817	4
Westgate Park	O	33	87	35	8	8	4	69	369	1817	1
Willsmere Billabong	J	9	39	8	2	4	1	13	13	255	0
Wilton Vale Marsh	L	8	87	32	5	8	7	27	108	578	4
Yarra Bridge Steamside Reserve	J	8	68	13	2	6	3	29	29	579	1
Yering Backswamp	K	5	57	11	3	1	0	12	16	337	1

*Excludes Helmeted Honeyeater

Yarra Catchment Summary

The Yarra catchment contains a diversity of environments, from grassy fields to the west of the catchment to forested ranges to the east and a mixture of urban and rural settings. A total of 1 estuary, 22 riparian sites and 26 wetlands were actively monitored across the Yarra catchment region during the reporting period. The best sites for species diversity and waterbird populations included Jacana Wetlands, Domaine Chandon Billabongs and Westgate Park. Some key findings across this catchment included the dominance of Noisy Miner, with a reporting rate of 78.27% for wetlands and 89.29% for the Yarra Estuary.

Wetlands

Wetlands across the Yarra were typically smaller in comparison to other catchments. Category O social wetlands and category J billabongs typified these smaller wetlands, and many of these sites recorded low ranges of waterbird populations, with maximum abundances <100 at 12 of the 19 wetlands under those categories. Most of those lowly sites recorded around 10-20 waterbird species, demonstrating a degree of richness, although supporting very few individuals across a diversity of species.

One billabong in particular, Burke Road Billabong, was far below expectations, recording a waterbird abundance range between 0-9 individuals from 17 surveys. Habitat assessments of the site recorded it in a dry phase throughout most of the reporting period, explaining this outcome. Typical of many billabongs in the region, terrestrial birds dominated these locations, with small ratios between max abundance of waterbirds and accumulative abundances of maximum counts of all species during a reporting period. Maximum counts for the MWrbm reporting period of several terrestrial species were recorded at billabongs in this region including Common Bronzewing at Birrarrung Billabong, Crimson Rosella and Wonga Pigeon at Yarra Bridge Streamside Reserve and Sacred Kingfisher at Spadoni Reserve.

Unlike these billabongs, Domaine Chandon Billabong was the most species rich and recorded several species with large populations including Australian Wood Duck with an observation of 247 individuals. Several unusual species for the region were recorded there too, with Rainbow Bee-eater and Pallid Cuckoo being reported.

Amongst social wetlands, unusual species such as Square-tailed Kite at Lillydale Lake and Rufous Fantail at Westgate Park made appearances amongst well faring populations of common waterbird species such as Australian White Ibis at a breeding colony at Coburg Lake and solid waterbird counts at Westgate Park such as Eurasian Coot and Hardhead. Westgate Park in particular was prominent for honeyeater species, with a dense richness of several honeyeater species including Red Wattlebird, White-plumed, New Holland and Spiny-cheeked Honeyeaters. For threatened species, these wetlands did not support consistent populations of these species, however a record of Blue-billed Duck at Edwardes Lake and Gang-gang Cockatoo records at Lillydale Lake and Kalparrin Gardens provided the highlights.

In Melbourne’s outer north, several wetlands with continued volunteer support reported a variation of results. Hawkstowe Wetland supported fewer species than other sites in the catchment, while Morang Wetlands and Wilton Vale Marsh recorded 87 species each with near identical statistics. Those wetlands continue to support a greater number of threatened species relative to other wetlands across the Yarra catchment.

Amongst threatened species, the critically endangered Helmeted Honeyeater was recorded at Cockatoo Creek Floodplain Wetland at Yellingbo whilst on the other end of the catchment, a critically endangered Black Falcon was recorded at Jacana Wetland. Both of these wetlands were species rich in their own rights, with a very different subset of species, highlighting the diversity of the Yarra catchment. Only 58 species were recorded at both locations, with 30 unique at Cockatoo Creek Floodplain Wetland and 48 unique records at Jacana Wetland when comparing the sites.

Estuary

The only estuary surveyed was the Yarra River. This survey was broken into lower, middle and upper parts for a total of 20 transects. Each area was environmentally different, although all were within long-term established urban and city areas. Sections 1-8 followed the Yarra south of the West Gate Bridge. Sections 9-12 followed the Yarra near the Royal Botanic Gardens. Sections 13 and 14 followed the Yarra near Fairview Park and Sections 15-20 followed the Yarra in a more forested section in Kew.

Noisy Miner was the most dominant species found along the Yarra, with a reporting rate of 89.29% followed by Silver Gull at 60%. Four threatened species were observed along the Yarra, although each was only recorded on one occasion, with only a single individual present. These were: Blue-winged Parrot, Common Sandpiper, Curlew Sandpiper and Great Egret.

Riparian

Five sites related to the ROMP and seventeen sites which have been monitored in the long-term were surveyed during the reporting period. Along the Plenty River sites 1,2 and 4 were typically richer with biodiversity and population counts compared to other locations along the Plenty River. The Running Creek was more accumulatively diverse over the reporting period, with maximum counts of all species accumulating >100 for all sites except 11. Similar accumulations were observed along the Olinda Creek staged removal. However, this site was the least diverse for species for the Olinda Creek sites.

Amongst the ROMP locations, five threatened Gang-gang Cockatoo were observed along the Yarra River works site. Malcolm Creek recorded an unusual proportion of waterbird species relative to all species, with a proportion of 55%, the highest proportion by more than double for the Yarra.

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