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Tree Martin – End of Season Report

Final

Prepared for: City of Adelaide

Season: 2025-2026

July 2026

Cover photo by Georgina Steytler (2014) via Birdlife Photography

Acronyms and Abbreviations

AEDA	Adelaide Economic Development Agency
AW Act	Animal Welfare Act 1985 (SA) (note, this Act will be repealed by the Animal Welfare Act 2025 (SA) on a date to be fixed by proclamation)
CoA	City of Adelaide
DEW	Department for Environment and Water (SA)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
H5 Bird Flu	High Pathogenic Avian Influenza (strain)
NPW Act	National Parks and Wildlife Act 1972 (SA)
PIRSA	Primary Industries and Regions South Australia
SA	South Australia
SAPOL	South Australian Police
TMMP	Tree Martin Management Plan

Item	Detail
Site	Rundle Mall, Adelaide
Season period	15 December 2025 – 30 June 2026
Species	Tree Martin (*Petrochelidon nigricans*)
Client	City of Adelaide
Contractor	Ecosure / Avisure

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1. Executive Summary

This report presents the outcomes of the Tree Martin (*Petrochelidon nigricans*) operational response and management program (on-ground operational response) undertaken in Rundle Mall, Adelaide, for the 2025 – 26 roosting season until 30 June 2026. It covers the approach, communications and stakeholder engagement, issues and resolutions, Tree Martin observations, mitigation measures and their effectiveness, and future recommendations.

The City of Adelaide (CoA) adopted a two-phase approach to Tree Martin Management for the 2025-26 roosting season:

Phase 1 – A coordinated approach to community amenity, public safety, business vitality and the welfare of wildlife for the 2025-26 roosting season (on-ground operational response).

Phase 2 – A Tree Martin Management Plan (TMMP) that looks at operational, medium and longer-term strategies for managing the annual Tree Martin roosting season.

The on-ground operational response was guided by the City of Adelaide's Tree Martin Operating Guidelines. During the on-ground operational response data and information on bird behaviour and management measures was collected and assessed to inform the operational response and inform medium to longer-term management strategies.

Tree Martin outcomes for the roosting season in Rundle Mall include:

- The 2025-26 roosting season began in December 2025 and continues through July 2026. It is possible that a portion of the roosting population will remain for the winter. This has not previously been observed in the City of Adelaide.
- Tree Martins were first observed roosting in Rundle Mall on 15 December 2025, with an initial count of approximately 30 birds. The colony peaked in February 2026 at ~20,540 birds (see Figure 1).
- The average roost numbers were highest in the month of March 2026 before gradually declining in the following months to 30 June 2026.
- 1,773 birds were triaged during the roosting season (see Figure 1): 847 birds were stunned and released; 256 birds were injured and received veterinary care; and 670 birds died. This mortality rate is 3% of the colony at its peak.

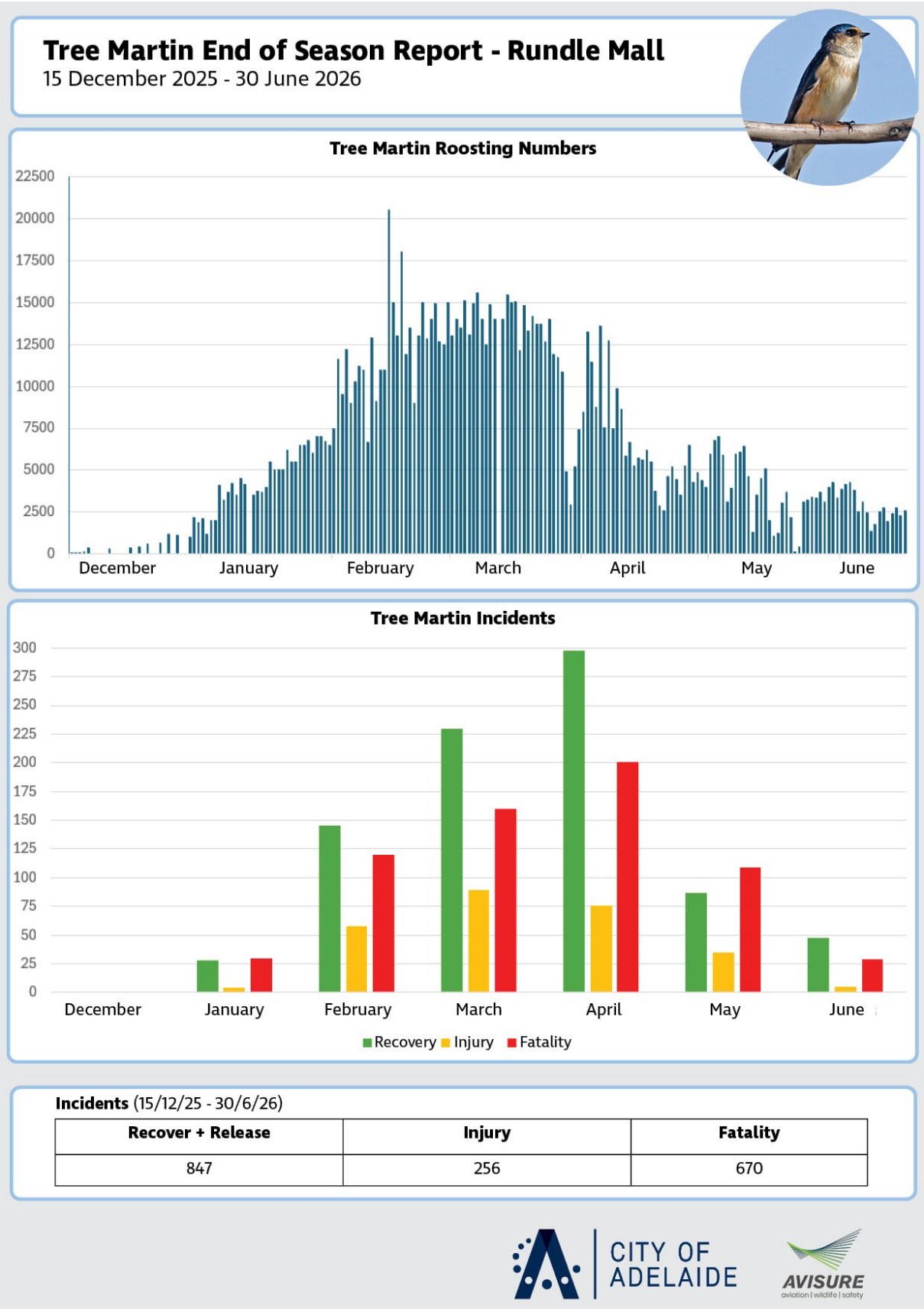

Figure 1. Tree Martin population and triage for 2025-26 roosting season

Tree Martins roosting in Rundle Mall presented complications and challenges for their management. This included:

- Risks to the birds arising from the physical environment such as overhead wires and large glazed shop-fronts, resulting in building entrapments, and strikes with buildings, windows and wires, resulting in bird injury and mortality.
- Implications for businesses and retailers operating in Rundle Mall which may have experienced business-related expenses and disruption due to Tree Martin mitigation measures and/or behaviour.
- Limitations for events and activations in Rundle Mall including additional operational requirements for event organisers and health considerations associated with bird droppings and odour.
- Amenity impacts associated with odour and bird faeces for visitors and businesses using Rundle Mall.

Tree Martin roosting in Rundle Mall also presented opportunities for visitors to experience and appreciate the arrival of the birds each evening and raise awareness about wildlife in the city and living with nature.

Alongside the 2025-26 operational response, the CoA adopted a scientific and evidence-based approach to preparing a management plan to assist in managing future Tree Martin roosting seasons. This report should be read in conjunction with the CoA TMMP.

2. Introduction

2.1 Overview

The City of Adelaide (CoA) adopted a two-phase approach to Tree Martin Management for the 2025-26 roosting season:

- Phase 1 – A coordinated approach to community amenity, public safety, business vitality and the welfare of wildlife for the 2025-26 roosting season (on-ground operational response).
- Phase 2 – A Tree Martin Management Plan (TMMP) that looks at operational, medium and longer-term strategies for managing the annual Tree Martin roosting season.

This report addresses the on-ground operational response (Phase 1) covering the approach, communications and stakeholder engagement, issues and resolutions, Tree Martin observations, mitigation measures and their effectiveness, and future recommendations.

Alongside the 2025-26 operational response, the CoA adopted a scientific and evidence-based approach to preparing a management plan to assist in managing future Tree Martin roosting seasons. The End of Season report should be read in conjunction with the CoA Tree Martin Management Plan (TMMP).

2.2 Program Purpose and Objective

The 2025-26 roosting season was the first year in which the CoA deployed a structured and resourced on-ground operational response in Rundle Mall.

Management of the Tree Martin colony in the 2025-26 roosting season was guided by three key objectives:

1. Ensure bird welfare and compliance with relevant wildlife protection and animal welfare legislation
2. Maintain business operation, public amenity and safety in high-use areas, including Rundle Mall and adjacent laneways
3. Enhance community understanding of the species and the City of Adelaide's role in managing urban wildlife responsibly.

2.3 Legislative and Policy Context

Management activities were conducted in accordance with the following legislative framework:

- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *National Parks and Wildlife Act 1972* (SA)
- *Animal Welfare Act 1985* (SA)
- *Biodiversity Act 2025* (SA)
- *South Australian Public Health Act 2011* (SA)
- *Local Government Act 1999* (SA)
- Wildlife Management (Controller) Permit (DEW).

The CoA developed the following documents to guide and direct works for the roosting season:

- CoA Tree Martin Operating Guidelines
- CoA Tree Martin Management Plan (TMMP)

2.4 Tree Martin Species and Historical Roosts

The Tree Martin (*Petrochelidon nigricans*) is a native migratory bird (see Appendix A) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and protected under the *National Parks and Wildlife Act 1972* (SA) (NPW Act).

The species commonly nests in tree hollows, rock crevices, and built structures including buildings and infrastructure. Nesting activity in urban environments can create conflict with building maintenance, construction, and development activities. The location of nesting sites is currently unconfirmed but is believed to occur outside of the City of Adelaide local government area.

After the breeding season, a colony of Tree Martins has roosted in the City of Adelaide, a natural behaviour that has been observed since approximately 2015. Tree Martin roosts have been recorded in Leigh Street and Rundle Mall (see Table 1 and Figure 2).

Table 1. Known roosting location site types

Site ID	Location/Address	Site Type	Previous History
S01	Rundle Mall	[Building/ Tree/ Infrastructure]	Yes
S02	Leigh Street	[Building/ Tree/ Infrastructure]	Yes

Roosting aggregations were originally reported in 2015 in Callery Pear street trees in Leigh Street in the city centre. After netting nine Callery Pear trees to exclude Tree Martins from roosting in August 2024 (see Appendix B, Figure 3), the roosting flock moved to Rundle Mall. In December 2024 the Tree Martins began roosting in six Chinese Elm trees located adjacent to Rundle Place in Rundle Mall (see Appendix B, Figure 4).

Roosting in large numbers may present a tension in the urban realm between the public health and amenity considerations of hospitality and retail businesses, and their customers, and the Council's strategic commitments to promote urban biodiversity and legislative obligations to protect the welfare of wildlife. This tension was reported in 2020-21 in Leigh Street (a key food and beverage zone) and most recently in 2025-26 in Rundle Mall (the city's premier retail precinct).

Figure 2. Known Roosting locations

2.5 Roost Site Description 2025-26

In the 2025-26 roosting season, the Tree Martins established a roost site in Rundle Mall concentrated in six Chinese Elm tree species. This was the same roost site as the previous season.

The six Chinese Elm trees extend west near the Gawler Place Canopy to near the Rundle Place entry, a distance of ~54 metres. The site provides attractive roosting conditions for the Tree Martins, as it is well lit, fairly sheltered with low predator activity and includes trees that have branches suitable for large roosting flocks.

The densely built environment of Rundle Mall, however, presents risks to the roosting flock as well as to the commercial stores and the public. In particular, the clear reflective glass windows on lower and upper shop fronts and catenary wires cause bird strikes when flocks arrive at the site or flush from the trees. Birds also enter stores and find it very difficult to exit, and it can be difficult to recover and remove them.

3. Operational Response

3.1 Overview

The 2025-26 Tree Martin season marked the first year in which the CoA deployed a structured, resourced on-ground response at Rundle Mall for the management of Tree Martins.

The on-ground operational response was focused on preparedness, employee training, operational consistency, data collection, and collaborative partnerships to ensure the effective management of bird welfare, business operation and city amenity.

The on-ground operational response incorporated specialist environmental consultants, dedicated security and customer service employees, formal Wildlife Management (Controller) permits, veterinary care, coordinated stakeholder engagement and communications approach.

During the on-ground operational response, data and information on bird behaviour and management measures was collected and assessed to continue to inform the response and medium to longer-term management strategies. This work has informed the development of the TMMP in 2025-26.

3.2 Governance Group

A Governance Group providing oversight of the delivery of the on-ground operational response was in place throughout the 2025-26 Tree Martin season. There was ongoing engagement with key stakeholders and representation from the Department of Environment and Water (DEW), Green Adelaide, the CoA and the Adelaide Economic Development Agency (AEDA).

3.3 Operating Guidelines

The on-ground operational response for the 2025-26 season was guided by the CoA's Tree Martin Management Operating Guidelines introduced in 2025.

3.4 Training and Permits

The management of Tree Martins in South Australia is governed by a combination of Federal Government and State Government legislation, as well as obligations arising from international agreements.

Taken together, the legislative framework requires that Tree Martin management activities be carried out by appropriately permitted and trained personnel, that disturbance to roosting birds be minimised, and that any handling or management of birds be conducted humanely.

3.5 On-ground Response Team

A dedicated on-ground operational response team was established to test different mitigation approaches, undertake data collection and triage bird incidents. The CoA lead the on-ground operational response with the support of local wildlife management specialists Avisure.

During daylight saving[1] the on-ground operational response was predominantly from 6pm to 9pm and from 5pm to 8pm after daylight saving ended. On Friday nights this was extended to 9pm to ensure that the on-ground operational response team was present during late night trading and increased activity in Rundle Mall to provide a response to incidents if they occurred. CoA was available to respond to reports of injured Tree Martins from members of the public from 6am to 9pm during daylight saving and until 8pm post the end of daylight saving.

3.6 After-hours Response

During the roosting season most of the Tree Martin monitoring, triage and engagement with businesses near the roosting trees and Rundle Mall visitors occurred after business hours. An after-hours response was provided via the CoA website and phone line which was notified on signage in Rundle Mall and on the CoA website. A key component of the after-hours response was the availability of on-call veterinary assistance.

A separate Tree Martin response phone was activated for CoA employees to contact and seek response after-hours, including weekends.

3.7 Veterinary Care

Whilst there are several veterinarians across metropolitan Adelaide that provide care for injured wildlife, options for this level of specialised avian care are limited within Adelaide.

To ensure bird welfare and compliance with wildlife protection and animal welfare legislation, injured Tree Martins unable to be released after observation on-site and / or found in the morning or during the day were taken to the partner veterinarian for the on-ground operational response for assessment and treatment.

The partner veterinarian provided a regular day service as well as an on-call evening service, as most incidents occurred outside standard business hours.

1 Daylight saving was from 5 October 2025 to 5 April 2026

3.8 Tree Martin Management Plan (TMMP)

The CoA has prepared a TMMP with the support of Ecosure Environmental Consultancy, and Avisure Consulting. The TMMP looks at operational, medium and longer-term strategies for managing the annual Tree Martin roosting season.

The TMMP was refined throughout the 2025-26 migratory season, integrating operational learnings, ecological monitoring data, and key stakeholder feedback to guide future Tree Martin roosting seasons across the city.

4. Stakeholder Engagement

4.1 Overview

CoA delivered a collaborative approach to Tree Martin management that aimed to minimise bird fatalities and ensure business operations, customer amenity and public spaces remained clean, safe and attractive.

The engagement approach with key stakeholders aimed to provide support and mitigation suggestions for key businesses impacted during the 2024-25 roosting season and engage with animal welfare organisations to help shape the approach for the 2025-26 roosting season. Engagement with government stakeholders informed management measures, on-ground training, permit requirements and Highly Pathogenic Avian Influenza (H5 Bird Flu) guidance. This engagement and interest from stakeholders assisted with delivering a coordinated response during the 2025-26 roosting season.

4.2 Key Stakeholders

Pre-season consultation was undertaken with the following priority businesses impacted by the 2024-25 roosting season and key stakeholders:

Priority businesses

- Apple Store
- Michael Hill Jewellers
- OPSM
- Optus
- Rundle Place
- Sunglass Hut

Government stakeholders

- Adelaide Economic Development Agency - Rundle Mall Management
- Department for Environment and Water (DEW)
- Green Adelaide
- Primary Industries and Regions SA (PIRSA)

Animal welfare organisations

- Wildlife rescue and care volunteers
- RSPCA
- Veterinarians

Business and community

- Rundle Mall businesses and general community including visitors.

4.2.1 Priority Businesses

Prior to the commencement of the season, Ecosure completed in-person consultation with CoA and the six priority businesses to discuss impacts from roosting Tree Martins. These discussions aimed to initiate a working relationship, document Tree Martin behaviour and incidents from each business' perspective, discuss potential CoA on-ground responses during 2025-26, and discuss the actions each business could implement.

Each business received tailored advice as to mitigation measures that they could undertake as part of the Tree Martin season.

Follow up conversations occurred during November and December 2025, both in person and online with each business. A range of management actions were suggested to each stakeholder including the installation of decals on windows, closing doors and switching off window lighting at high-conflict times (sunset).

During the roosting season the businesses were sent project updates via email and in-person. There was also ongoing communication with the on-ground team, including to alert businesses of the evening arrival of the birds for businesses to activate any of their preferred measures to prevent birds entering stores and to provide assistance if needed.

4.2.2 Government Stakeholders

The Adelaide Economic Development Agency – Rundle Mall Management were represented on the Governance Group providing oversight of the delivery of the operational response throughout the 2025-26 Tree Martin season. This included communicating with businesses about the roosting season, coordinating with contractors and event organisers and the on-ground operational response team for delivery of activations and works, and reporting to the AEDA Board.

DEW provided advice prior to and during the roosting season including on processes for Tree Martin triage and training material developed by CoA with the support of Ecosure and Avisure. DEW also provided advice on wildlife permits and mitigation measures and Green Adelaide provided advice and input prior to and during the roosting season including the Tree Martin Management Plan, communications support and mitigation measures.

PIRSA provided advice on the implications and reporting obligations in the event that H5 Bird Flu was detected while Tree Martins were roosting in Rundle Mall.

Table 2. Government engagement during season

Organisation	Nature of Engagement
Adelaide Economic Development Agency - Rundle Mall Management	Site access and notifications Business communications AEDA Board reporting
Green Adelaide	Provided advice for the 2025-26 Tree Martin roosting season management response
DEW	Regulatory/ permit authority Provided advice for the 2025-26 Tree Martin roosting season management response
PIRSA	Provided direction on implications and reporting obligations if H5 Bird Flu was suspected in the Tree Martins roosting in Rundle Mall

4.2.3 Animal Welfare Organisations

Veterinary care options were investigated for assessment and care of injured Tree Martins, which identified that veterinary services for this specialist care are limited.

The Adelaide Bird and Exotics Vet Centre was the partner vet for the 2025-26 roosting season and provided a regular day service and tailored on-call evening service. Part of the tailored care included an after-hours on-call service for birds injured as they arrived and settled for the evening roost, and hand feeding of birds in care (as Tree Martins are insect eaters and require hand feeding).

Most vet centre admissions occurred after hours (68%) with approximately 32% occurring during the day (business hours).

In October 2025, engagement with wildlife volunteer organisations commenced to understand their interest and capacity to support the care of injured Tree Martins during the 2025-26 roosting season.

As with veterinary care for Tree Martins, care availability by volunteers is specialised and limited to volunteers with the relevant training and permits. A rostering solution for volunteer assistance for on-ground response, feeding and care was explored but was not employed in 2025-26. This was due to the veterinary, Avisure and CoA capacity being adequate for the number of incidents.

On a number of occasions wildlife rescue volunteers attended Rundle Mall during the on-ground evening shift to observe the Tree Martins and were available to provide additional support to the on-ground team, if needed, such as monitoring for bird incidents and handing stunned or injured birds to the on-ground team (if permitted).

4.2.4 Rundle Mall Businesses

Additional to direct communications with priority businesses, the CoA and Adelaide Economic Development Agency - Rundle Mall Management distributed communications to businesses in Rundle Mall via in person postcard drop at the start of the roosting season and at the end of daylight saving. These communications are detailed in the following section. The on-ground operational response team were available and in instances responded to business requests for assistance outside of the roosting area.

5. Communication and Notification

5.1 Overview

A coordinated communications approach was delivered to inform the community, businesses, and key stakeholders about the Tree Martin management response. Feedback from stakeholders is included in this section.

Key communication and reporting included:

- A dedicated webpage was hosted on the CoA website as the central source of information on Tree Martin management and the 2025-26 on-ground operational response.
- An after-hours response was provided via the CoA website and phone line which was notified on signage in Rundle Mall and on the CoA website. A key component of the after-hours response was the availability of on-call veterinary assistance.
- A separate Tree Martin response phone was activated for CoA employees to contact and seek response after-hours, including weekend from 6am to 9pm during daylight saving and until 8pm post the end of daylight saving.
- The CoA's Place Coordinators, in collaboration with the Adelaide Economic Development Agency – Rundle Mall Management, supported with the distribution of information across business precincts.
- Meetings with priority businesses occurred prior to the start of the roosting season and email updates were provided during the roosting season. CoA and the on-ground operational response team communicated with priority businesses throughout the season as needed, including to prepare for the end of daylight saving and to assist with recovering birds from within buildings .
- Council Members and the AEDA Board were kept abreast of the operational response throughout the 2025-26 roosting season.

5.2 Pre-season Communication

Prior to the season commencing, the following communications were undertaken:

- Site occupants and building managers in Leigh Street and Rundle Mall were notified of anticipated Tree Martin activity and planned management measures.
- Pre-season meeting conducted between Ecosure, Avisure and DEW to discuss relevant materials, requirements and restrictions regarding the on-ground operational response.
- To help raise awareness, postcards were distributed in early November 2025 to businesses in Leigh Street and Rundle Mall, later supported by public signage in Rundle Mall highlighting the presence of the birds and featuring a QR code linking directly to the website for more details.

5.3 In-season Communication

Communications material was developed to assist with response during the roosting season as outlined in the table below.

Table 3. Communication materials provided during the roosting season

Date	Stakeholder	Communication Type	Summary
November 2025	Rundle Mall and Leigh Street businesses	Postcards	To raise awareness about the upcoming roosting season (see Appendix C, Figure 5).
December 2025	Rundle Mall visitors	Bench decals	To raise awareness about the upcoming roosting season (see Appendix C, Figure 6).
December 2025	Rundle Mall businesses	Mitigation assistance	Birds-of-prey cut-outs available to businesses to deter Tree Martins from entering stores (see Appendix C, Figure 7).
January 2026	Rundle Mall visitors	Bench decals	To raise awareness of the presence of Tree Martins in the roosting area (see Appendix C, Figure 8).
January 2026	Rundle Mall visitors	Digital screens in Rundle Mall	Direction and contact for responding to injured birds (see Appendix C, Figure 9).
January 2026	Rundle Mall visitors	Onsite signage	Direction and contact for responding to injured birds (see Appendix C, Figure 10).
March 2026	Rundle Mall visitors	Onsite signage	Raising awareness about food health and safety around roosting trees (see Appendix C, Figure 11).

Date	Stakeholder	Communication Type	Summary
April 2026	Rundle Mall businesses	Postcards	Information on how to deter birds from flying indoors and into windows and how to respond to an injured bird in preparation for end of daylight saving (see Appendix C, Figure 12).
April 2026	Rundle Mall businesses	Window decals	To notify shoppers that stores are still open even if doors are closed (to encourage doors to be closed during Tree Martin evening arrival) in preparation for end of daylight saving (see Appendix C, Figure 13).
June 2026	CoA permit holders	Email	Email about H5 Bird Flu, heightened awareness and precautionary approach due to confirmed case in South Australia.
June 2026	On-ground operational team and permit holders	Verbal briefing	Briefing about H5 Bird Flu, heightened awareness and precautionary approach due to confirmed case in South Australia.

5.4 On-ground Communication

The evening on-ground operational response included responding to queries and informing interested members of the public about the Tree Martins.

Themes that emerged from engagement with the on-ground team, enquiries and social media follow:

Biodiversity

- Nature appreciation including acrobatics and beauty of the arrival of the birds each evening
- Curiosity about the species and their behaviour
- Curiosity about the species migration and when and why they migrate to South Australia
- Interest in seeing the birds up-close.

Welfare

- Outcomes for stunned and injured birds
- Concern about trapped, injured and deceased birds and challenges of the urban environment
- Impact of Leigh Street netting on birds shifting to Rundle Mall
- Inquiring if the birds will be dispersed.
- Appreciation of presence of on-ground team

Amenity

- Impact of odour, droppings and cleansing regime
- Appropriateness of location
- Support for relocating the birds as well as maintaining current roost site.

Resourcing

- Cost and effectiveness of on-ground response.

5.5 Business Communication

The presence of Tree Martins roosting in Rundle Mall generated a range of impacts for nearby businesses throughout the season and key impacts communicated by businesses follow:

Amenity and odour

- Accumulation of bird droppings creating odour and amenity concerns for the businesses, customers and the broader public, including customer complaints and impacts on the trading environment
- Significant increase in cleaning requirements, particularly those with outdoor areas, shopfronts and internal areas and for product displays when birds entered stores.

Business disruption

- Disruption and impacts to branding when birds entered stores and from intervention from on-ground response team to recover the birds
- Disruption and impact to tenants when birds entered buildings
- Loss of trade or extra expense when birds entered stores
- In one instance an incursion of approximately 100 birds resulted in a business closing over two days and partially closing on a third day while the situation was resolved and cleaning was undertaken
- In a number of instances, a business had to employ a security guard overnight when a bird(s) remained in the store as the alarm could not be activated
- Closing store doors during the arrival of the evening flock was disruptive and required the addition of a door person in one instance and when doors were not open could signal to customers that the store was closed

- The evening peak in roosting activity coincided with trading hours for businesses. This had customer facing impacts, including odour, noise and the presence of distressed or injured birds, occurring during periods of high foot traffic in Rundle Mall.

Expenses

- Extra expenses incurred from mitigation measures, extra cleaning, additional security.

5.6 Animal Welfare Organisations Communication

Volunteers from animal welfare organisations visited the roosting site during the on-ground response and communicated feedback as follows:

Biodiversity

- Nature appreciation including acrobatics and beauty of the arrival of the birds each evening.

Welfare

- Interest in triage and assessment process and different approach to holding time for stunned birds
- Concern about trapped, injured and deceased birds and challenges of the urban environment
- Interest in veterinary care of injured birds
- Impact of Leigh Street netting and concern with potential dispersal/roosting prevention.

Mitigation measures

- Concern with potential impact of wire markers on bird flight behaviour
- Support for possum tails installation.

Communications

- Concern that communications material did not include options for injured birds found by members of the public outside the hours of CoA's on-ground operational response
- Concern that communications material noting that Tree Martins should not be handled by those who were not trained and permitted could result in lack of assistance for injured birds found by members of the public.

6. Tree Martin Observations

6.1 Overview

In 2025-26 the CoA undertook a planned and measured approach to managing the Tree Martin migratory season. This approach enabled data and evidence to be collected in 2025-26 to inform future management actions.

During the 2025-26 on-ground operational response, data and information on bird behaviour and management measures was collected and assessed to inform the on-ground operational response and medium to longer-term management strategies.

This section summarises the survey methods used, roosting activity, bird behaviours, observations and comments on migration.

6.2 Pre-arrival monitoring

Monitoring of previous roosting sites (Leigh Street and Rundle Mall) and other locations with similar characteristics (Ebenezer Place and Vardon Avenue) commenced in October 2025.

Tree Martins were first observed roosting in Rundle Mall on 15 December 2025, with an initial count of approximately 30 birds, prompting the commencement of on-ground evening monitoring from that date.

Potential roost sites in other locations continued to be monitored in 2025 until the end of January 2026 when the colony was established in Rundle Mall. There was no evidence that birds sought to use trees in the other locations monitored.

6.3 In-season Monitoring

The roosting season commenced on 15 December 2025, when Tree Martins were first seen roosting in Rundle Mall.

6.4 Survey Methods

Observations were conducted in accordance with the monitoring protocol established prior to the season and the CoA Tree Martin Management Operating Guideline. Surveys involved counts of the evening flock and monitoring activity and triage during morning departure and evening arrivals.

Table 4. Tree Martin surveys

Parameter	Detail
Survey frequency	Daily
Survey dates	19 December 2025 (when Avisure started collecting survey data) until 30 June 2026
Observer(s)	Avisure wildlife biologists, ecologists and management officers CoA on-ground operational response team Wildlife volunteer organisations (on occasion)
Survey method	Visual monitoring and roosting counts
Equipment used	Binoculars and multispectral binoculars (with night vision capabilities)

6.5 Roosting Activity

Roosting activity during daylight saving was frequently recorded between 7.00pm and 9.30pm, following daylight saving ending roosting was frequently recorded between 5.45pm and 7.30pm. Outliers were sporadically recorded throughout the season due to late night flushes.

Roosting time was recorded when all birds had entered the trees, vocalisation had decreased and the birds were observed settling for the night.

See Table 5 for roost count summary data.

Table 5. Monthly roost summary data per day, December 2025 to June 2026. Recorded at the Rundle Mall roosting location – S01.

Date:	Dec 2025	Jan 2026	Feb 2026	Mar 2026	Apr 2026	May 2026	Jun 2026
1	-	-	5000	15000	14830	5500	3030
2	-	-	5000	13000	13300	3750	3600
3	-	-	5025	18000	14150	2860	2200
4	-	-	6200	11900	13700	2600	150
5	-	-	5500	13500	13700	4610	400
6	-	-	6000	9630	12670	5200	3100
7	-	250	2000	13000	6500	4470	3200
8	-	-	6500	15000	12890	3500	3400
9	-	211	6750	12860	11750	5290	3350
10	-	-	6000	14000	10850	6500	3700
11	-	-	7000	14930	4890	4250	3120
12	-	1000	7500	12640	2950	4850	4000
13	-	2350	6700	12500	5200	4400	4250
14	-	1862	6500	15000	7440	4000	3350
15	-	2130	7500	13000	13980	5970	3850
16	-	1200	11640	14000	13250	6800	4140
17	-	2000	10000	13500	11425	7000	4250
18	-	-	12200	15100	8740	5920	3800
19	50	4140	9000	13080	13600	3090	2500
20	-	3200	10280	14950	7510	3920	3100
21	-	3700	11180	15600	17225	5420	2450
22	-	4200	11000	14010	7500	6100	1350
23	-	3400	6680	12500	9850	6400	1750
24	-	4500	12890	14860	8650	4600	2500
25	-	4130	9080	14000	5820	1270	2750
26	-	-	11000	-	6650	3500	1950
27	-	4300	11000	14000	5250	4500	2400
28	-	4200	20540	15450	5750	5110	2750
29	405	3725	-	15000	5600	2000	2300
30	330	4000	-	15250	6200	1060	2580
31	-	5500	-	12110	-	1250	-

6.6 Population and Activity Trends

Between 15 December 2025 and 30 June 2026, Avisure has attended the Rundle Mall roost most nights alongside the CoA on-ground operational response team and contracted security officers. The objectives were to:

1. Monitor bird activity and the overall roost size of Tree Martins each evening by estimating the numbers in each flock as they arrived at the site (noting bird counts are indicative due to very large flocks arriving in quick succession along with regular flushing of the flocks already onsite making it difficult to obtain accurate estimates).
2. Triage individual Tree Martins that had been stunned, injured or entered into buildings, remove deceased birds and transport injured birds to veterinary care.
3. Respond to queries from members of the public, visitors and provide an on-site contact point for businesses in Rundle Mall.

6.6.1 Rundle Mall Population

The initial count by Avisure on 19 December 2025 was around 50 birds. The numbers grew to a peak of approximately 20,540 recorded on the 28 February 2026. The average roost numbers were highest in the month of March 2026 before gradually declining in the following months to 30 June 2026 (Figure 14).

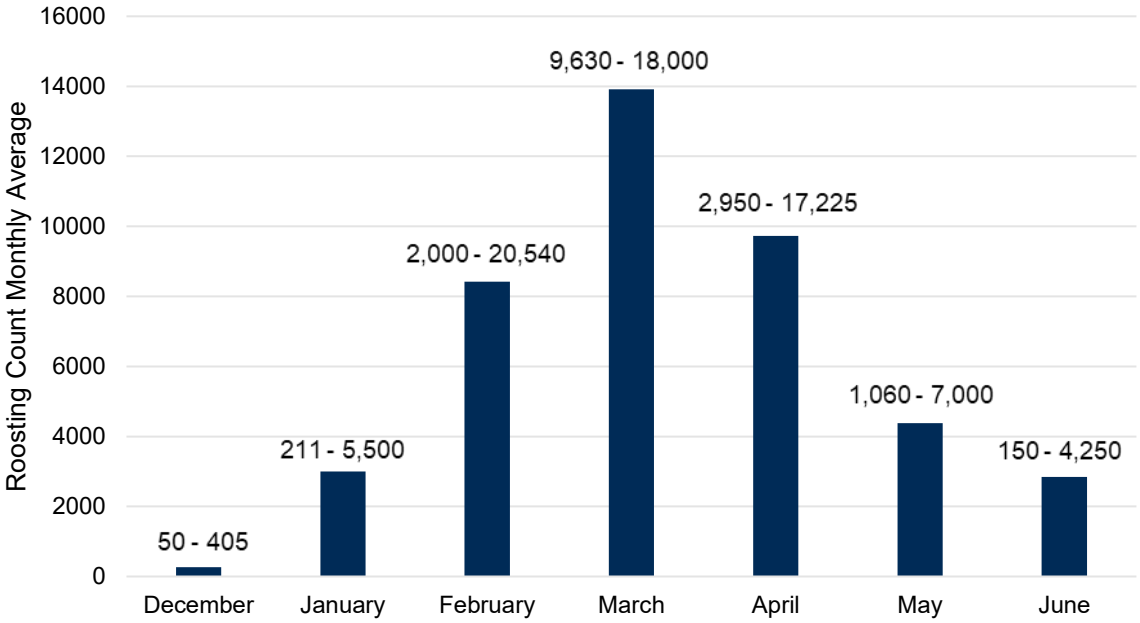

Figure 14. Tree Martin roosting count monthly average December 2025[2] through to June 2026. (Numbers above each bar represent the lowest to highest range for that month)

2 Data collected in December and March does not account for all days of the month, as roosting was not recorded on some public holidays and weekends.

6.6.2 Injuries and deaths during the roost fly-in

During the 2025-26 roosting season, for the evening roost fly-in period, there were 1,511 individual birds triaged including deceased, injured and stunned birds (Figure 15).

There were 555 bird deaths recorded with most dying on impact or during triage. Of the bird deaths, 221 died due to building/window strikes; 160 wire strikes; and 162 due to entering buildings. 12 birds died due to other causes (stress, strikes with signage, tree strikes, and unknown cause of strike).

Of the triaged birds, 173 were injured to the extent that they were unable to be released onsite and were transported for veterinary care. Adults accounted for 87 birds and 86 were juveniles and adolescents. Of these injured birds, 72 resulted from collisions with building/windows; 59 from wire strikes; 35 from entering buildings; and 7 injuries had unknown causes.

Just over half (52%) of the triaged birds were stunned and successfully released back to the roost. Of the 783 stunned birds, 386 birds struck buildings/windows; 126 struck wires; 261 entered buildings; and ten birds were stunned due to other causes (heat stress, strikes with signage, tree strikes, and unknown strike). Adults accounted for 51% (401 individuals), whilst juveniles/adolescents accounted for 45% (355 individuals), 27 triaged birds were unknown ages.

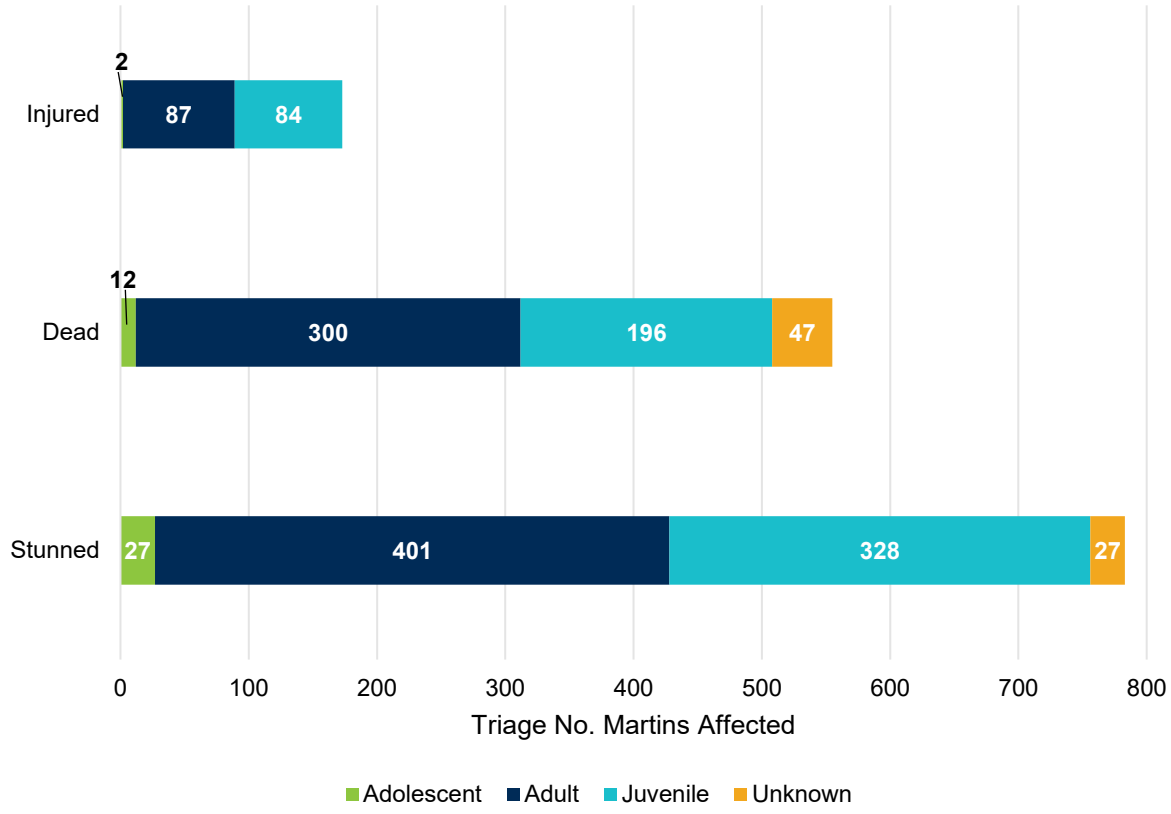

Figure 15. Outcomes for all incidents, categorised by age December 2025 to June 2026 (PM) (excludes nine individuals that were unable to be captured)

Building/window strikes accounted for 45% of triages (679 individuals), with both adults (315 individuals) and juveniles/adolescents (327 individuals) accounted for[3] (Figure 16). Most of the building/window strikes occurred when roost numbers were greatest, with 485 strikes in February and March 2026. A priority business installed window decals to the ground floor windows which were effective in reducing window strikes. The upper storey window of the same business was prone to strikes and following the installation of window decals on the upper storey, collisions declined significantly to less than half the number during April 2026. Fewer birds roosting may also have contributed to this.

Wire strikes accounted for 23% of triages (345 individuals) with adults (219 individuals) accounting for 64% of all wire strikes and juveniles/adolescents (125 individuals) accounting for 36%. Most of the strikes were recorded in two high risk locations, close to the main roosting trees. Following the removal of wire markers above the roosting trees at the beginning of February 2026, wire strikes continued to increase peaking in March 2026 with 135 strikes. Following the installation of protective tubing on the catenary wires in May 2026, wire strikes in the high-risk areas declined. Fewer birds roosting may also have contributed to this.

Building entry accounted for 31% (467 individuals) of all triages with 250 adults and 184 juveniles/adolescents impacted. Large flushes recorded in April 2026 accounted for 69% (266 individuals) of all flushes during the season. A single significant incidence occurred on 24 April 2026 resulting in small flocks of over 200 birds being recorded in a building and resulting in triage over multiple days. A business operator closed their premises for trading as part of this incident. The majority of birds were successfully retrieved and released after monitoring.

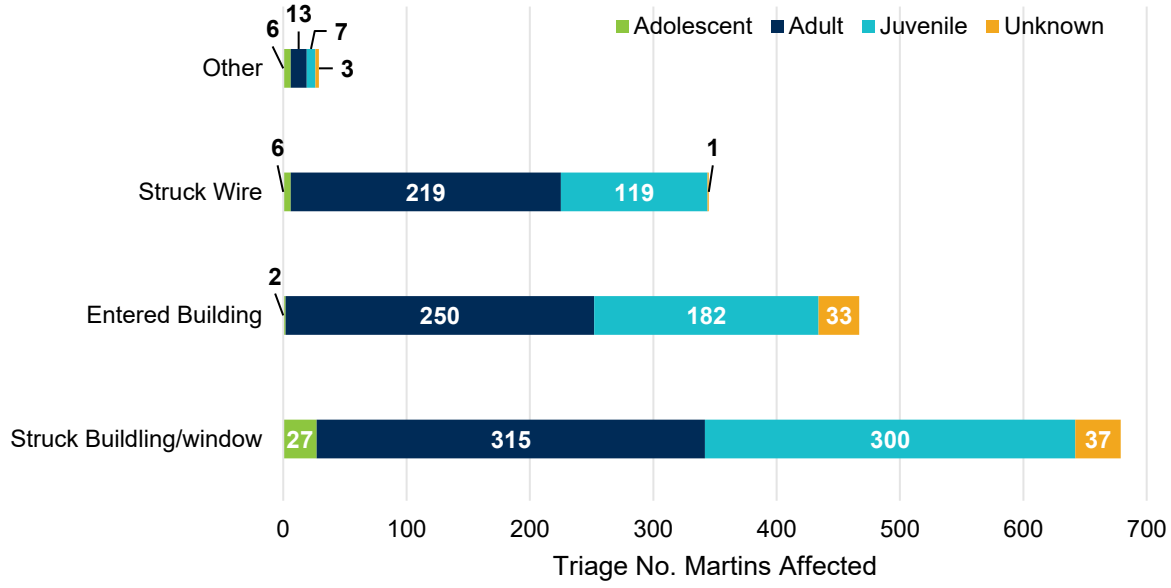

Figure 16. Cause of triages, categorised by age December 2025 to June 2026 (PM) (Other include: struck eve, struck tree, struck sign, heat stress and unknown)

3 Note that the life stage of each Tree Martin that was triaged was not recorded, therefore the life stage break down will not always equal total number triaged.

6.6.3 Injuries and deaths at other times

During the roosting season, the CoA on-ground operational response team monitored Tree Martins departing the Rundle Mall roost in the mornings and responded to daytime incidents. The objectives were to:

- Monitor bird activity.
- Triage individual Tree Martins that had been stunned, injured or entered buildings, remove deceased birds and transport injured birds to veterinary care.
- Support businesses and traders in Rundle Mall.

During the 2025-26 roosting season to 30 June 2026, the majority of incidents occurred during the evening arrival and roosting compared with 262 birds triaged during the day including deceased, injured and stunned birds (Figure 17).

There were 115 fatalities recorded with most dying on impact. Of the bird deaths, 32 died due to building/window strikes; 32 wire strikes; and 22 due to building entry. 29 birds died due to other causes (possibly heat stress, unknown cause of strike).

83 were injured to the extent that they were unable to be released onsite and were transferred for veterinary care. Of these injured birds, 14 resulted from collisions with building/windows; 15 from wire strikes; 19 from being in buildings; and 35 injuries had unknown causes.

64 of the triaged birds were stunned and were successfully released. 29 birds struck buildings/windows; 12 struck wires; 18 entered buildings; and five birds due to unknown causes.

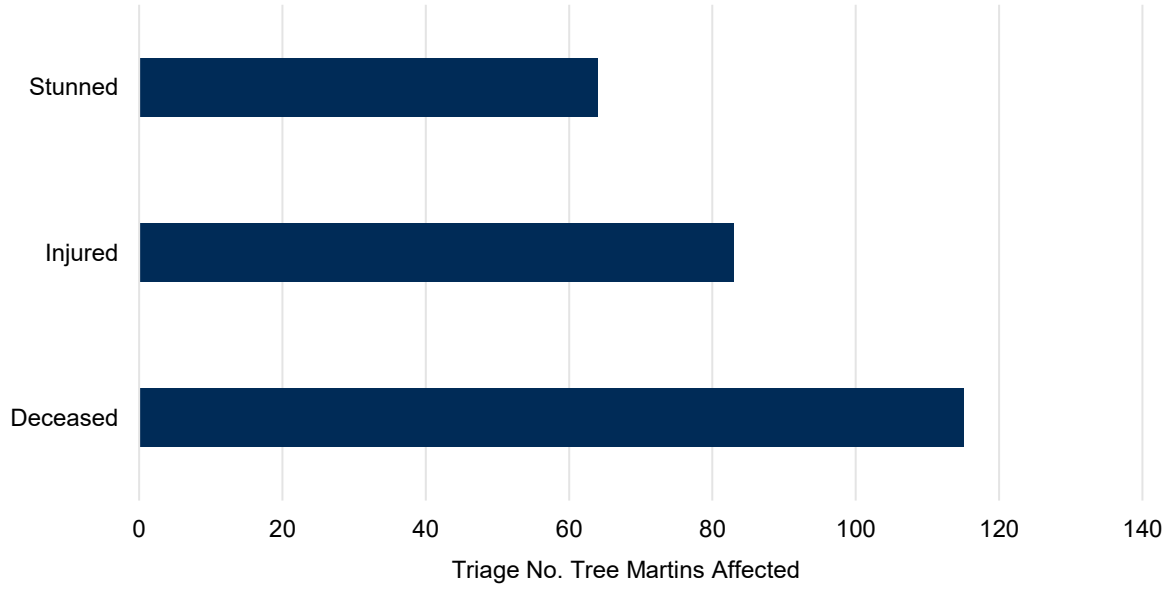

Figure 17. Outcomes for all morning and daytime incidents, December 2025 to June 2026 (AM).

Building/window strikes accounted for 30% of triages (79 individuals). Over half of the building/window strikes occurred when roost numbers were greatest, with 47 in February and March 2026. Strikes occurred most often in No Fixed Address Lane and close to the roosting trees. Following the installation of scaffolding in No Fixed Address Lane, collisions stopped in this area. Fewer birds roosting may also have contributed to this. Building/window strikes for all times of day was equal to 3.7% of the colony at its peak.

Wire strikes accounted for 23% of triages (59 individuals). Most of the strikes (46) were recorded close to the main roosting trees. Following the removal of wire markers at the beginning of February 2026, wire strikes continued to increase peaking in March 2026 with 22 strikes. Following the installation of protective tubing on the catenary wires in May 2026, wire strikes in the high-risk area declined to two. Fewer birds roosting may also have contributed to this. Wire strikes for all times of day was equal to 2% of the colony at its peak.

Building entry accounted for 23% (59 individuals). Birds who were trapped in buildings during the day were mostly from evening flushes or flight behaviour as they flew in to roost. 25% of birds were released, with 37% deceased and 30% injured (Figure 18). Building entry for all times of day was equal to 2.6% of the colony at its peak.

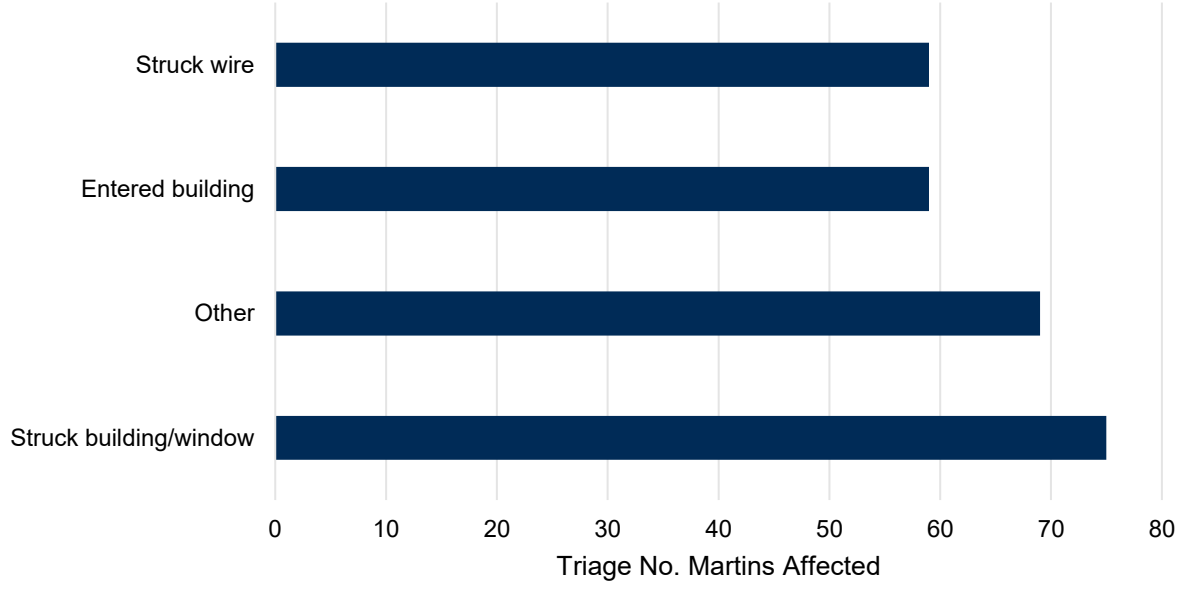

Figure 18. Causes of triages, December 2025 to June 2026 (Day).

6.7 Notable Observations

The following key observations and learnings are made at the Rundle Mall roost over the 2025-26 roosting season:

1. Closing doors during the Tree Martins' evening arrival was an effective measure that was implemented. In some instances, due to door design, it was not possible to close doors.
2. Members of the public collected dead and injured birds with their hands which presented a hygiene risk. Hand sanitiser was made available. Tree Martin signage in Rundle Mall and verbal advice provided by the on-ground operational response team advised members of the public not to handle the birds.
3. Friday evenings required additional staffing during the evening on-ground shift for part of the season due to late night shopping when bird arrival coincided with store opening hours, resulting in birds entering buildings more readily. Fridays also presented significantly more foot traffic and interactions of the on-ground operational response team with members of the public.
4. Events such as the Adelaide Fringe Festival increased foot traffic causing more interactions between the roosting flock and people.
5. The birds appeared to be affected more on windy days, with flush events increasing and birds taking longer to settle, probably because their manoeuvrability was impeded.
6. Removing birds from buildings once they entered was difficult, due to tall ceilings and large spaces making it difficult to use handheld nets. Birds often did not survive if they remained in a building for more than a few days.
7. Odour around the roost trees increased after rain events.

6.7.1 Migration

Tree Martins roosting in Rundle Mall during the 2024-25 roosting season migrated by the end of May 2025. Migration during the 2025-26 roosting season has been observed, however a small group of birds remain in Rundle Mall at 30 June 2026. It is possible that a portion of the roosting population will remain for the winter. This has not previously been observed in Adelaide.

There may be a correlation between temperature and migration times (Figure 19). Minimum temperatures from 17 to 31 May 2025 were below 10 degrees except for three nights. In 2026 during this same time minimum temperatures were above 10 degrees, except for two nights. During this same time maximum temperatures were higher in 2026 than in 2025 except for five days.

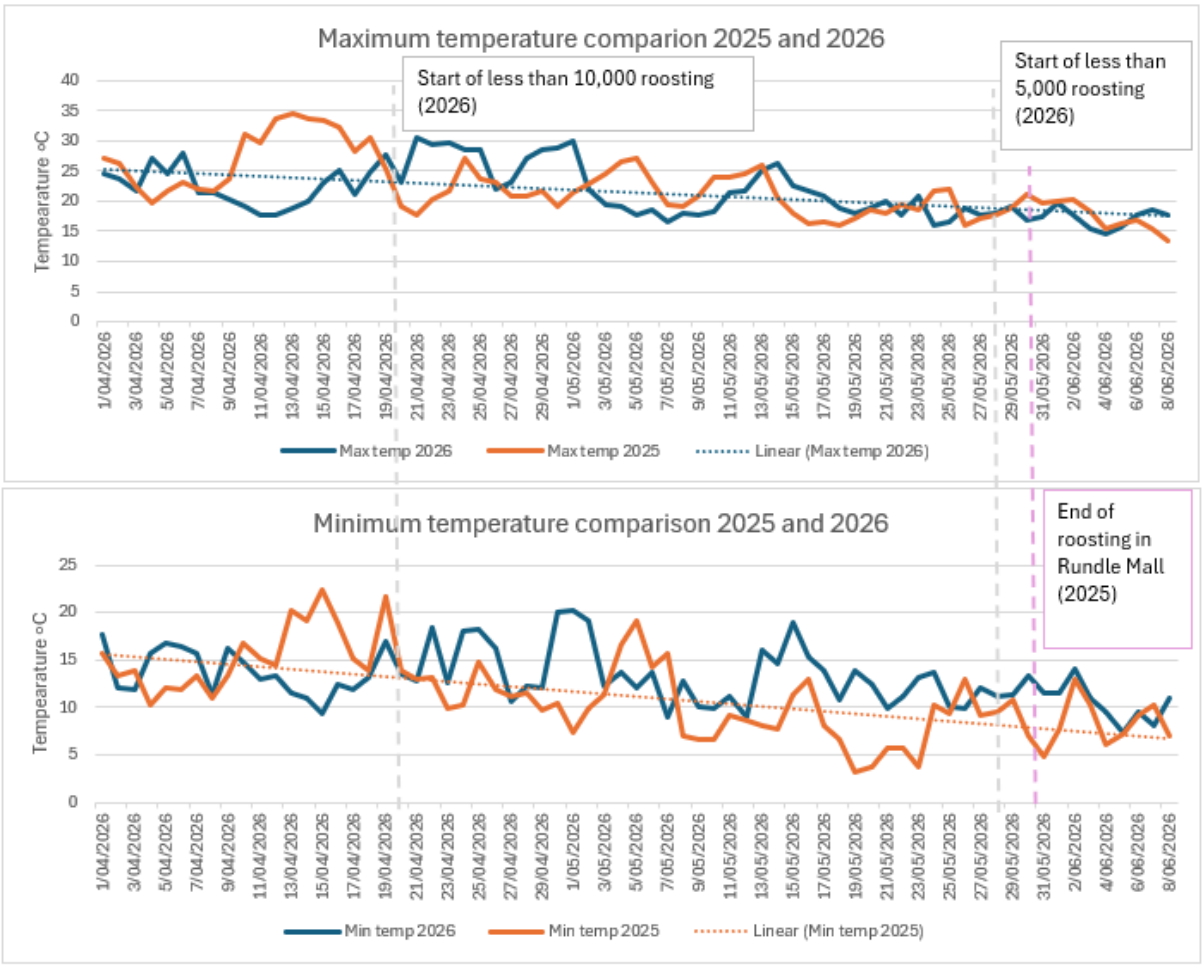

Figure 19. Comparison of maximum and minimum temperatures April to May 2025 and 2026.

7. Mitigation Measures and Effectiveness

7.1 Overview

Ecosure developed tailored advice as to mitigation measures that CoA and businesses could undertake as part of the Tree Martin season. The approach for the 2025-26 roosting season was to test mitigation measures for their effectiveness in Rundle Mall and whether their effectiveness and refinement could provide a suitable location for the colony of roosting birds.

7.2 Summary of Measures Implemented

Table 6. Measures implemented by the City of Adelaide

Measure	Description	Target Site(s)	Period Applied	Comments
Wire Markers	Discs that absorb sunlight during the day and emit ultraviolet light at night to make overhead wires more visible	Top structural wires of the catenary system and building anchor wires from Charles Street to Stephens Place in Rundle Mall (see Appendix E, Figure 20)	Installed 8/01/2026 Removed from section over roosting trees 5/02/2026	Unknown baseline for effectiveness as markers were installed before incidents began, however effectiveness was insufficient as a single mitigation measure.
Possum Tails	Silicon rubber covers to increase overhead wires visibility, thickness and cushioning	Top structural wires of the catenary system and building anchor wires above the roosting trees (see Appendix E, figure 21)	Installed 7/05/2026 - 28/05/2026	Wire strikes declined after installation. Fewer birds roosting may have also contributed to this. Effectiveness could be increased by extending coverage on anchor wires and top of juncture wires and other strike hot spot areas (subject to engineering assessment).
Roost monitoring	On-ground presence during morning departure and evening arrival for monitoring, triage and engagement	Rundle Mall	Commenced at start of roosting season 15/12/2025	Evening on-ground operational response team from Avisure, CoA and Wilson Security, 3 evenings per week from 15/12/2025 and 7 evenings per week from 12/01/2026. Effective at responding to incidents, engagement and understanding bird behaviour and effectiveness of mitigation measures.

Measure	Description	Target Site(s)	Period Applied	Comments
Permit	Wildlife (Management) Controller Permit	Adelaide Metropolitan Area	From 24/12/2025	6 Avisure team members authorised under the permit to deliver on-ground monitoring and triage support.
			From 3/02/2026	35 CoA employees authorised under the permit to deliver on-ground monitoring and triage support.
Training	Tree Martin Response Training	City Library CoA teams responsible	From the 4/11/2025	Tree Martin response training delivered by Avisure and CoA for employees to assist with on-ground monitoring and triage.

7.3 Adaptive Measures to Manage Tree Martins

Table 7. Timeline of adaptive measures to manage seasonal Tree Martin roosting undertaken by CoA

Date	Action	Outcome
September 2025	Engaged wildlife management specialists.	Development of operational response plan, including operating guidelines, and delivery of on-ground response.
October 2025	Began engagement with RSPCA, wildlife care volunteers and veterinarians for upcoming season.	Increased CoA's understanding of Tree Martin behaviour and sector capacity to shape approach for upcoming season.
November 2025	Began engagement with businesses close to roosting trees for upcoming season.	Increased CoA's understanding of potential mitigation measures and helped shape approach for upcoming season.
November 2025	Postcards in preparation for roosting season distributed to Rundle Mall facing stores.	Raise awareness about upcoming roosting season.
December 2025	Tree Martin mitigation options report developed.	Options shared with key businesses near roosting trees.
December 2025	Tree Martin bench decals installed near roosting trees in preparation for season.	Raise awareness about roosting season.
December 2025	Birds-of-prey cut-outs available to businesses around roosting trees.	Limited data to measure effectiveness.
December 2025	On-ground response commenced.	Monitoring to strengthen understanding and inform the management plan.
December 2025	Tree Martin response phone activated.	Direct contact with project team for incident response.
January 2026	Wire marker installation on overhead wires in Rundle Mall completed.	No wire strikes recorded this season before installation to compare outcomes.
January 2026	On-ground response increased from 3 to 7 days.	Increased presence to monitor and respond to incidents.
January 2026	On-site signage installed around trees.	Increased prominence of information and contact number for incidents.
January 2026	Updated bench decals installed.	Raise awareness about roosting season.
January 2026	Digital screens in Rundle Mall.	Provided direction and contact number for responding to injured Tree Martins.
February 2026	Wire markers removed from central section above roosting trees but retained from	Observations for any changes to bird flight behaviour.

Date	Action	Outcome
	Gawler Place to Stephens Place and east of the roosting trees to Charles Street.	
March 2026	Professional clean of drain in front of roosting trees.	Reduced odour.
April 2026	Tree Martin Operating Guidelines finalised based on 2025-26 season.	Guidance for 2025-26 roosting season
April 2026	Updated postcards distributed to Rundle Mall facing stores.	Remind businesses of earlier arrival due to end of daylight saving and how to reduce bird incidents.
April 2026	Professional clean of drain in front of roosting trees.	Reduced odour.
April 2026	Window decals for store windows produced.	Offered to businesses near roosting trees in preparation for end of daylight saving to encourage doors to be closed during evening roost arrival.
May 2026	Installation of possum tail coverings on catenary wires surrounding roosting trees.	Reduced the numbers of fatalities caused by wire strikes.

7.4 Effectiveness Assessment

The effectiveness of each mitigation measure was assessed against the program objectives using the following criteria: (1) degree of compliance with legislation, (2) minimisation of disturbance to nesting birds, and (3) facilitation of necessary works.

Table 8. Mitigation effectiveness assessment

Measure	Description	Effectiveness Rating	Comments
Window film/decals	Window films/decals were highly effective in reducing bird collisions with shopfront glazing by increasing the visibility of reflective glass surfaces and reducing the likelihood of birds misinterpreting windows as open flight paths or habitat. The treatment provided an immediate and practical mitigation measure at identified high-risk collision locations. This measure was a business action and not implemented by the City of Adelaide.	High	If roosting continues, window film/decals are recommended for high strike areas within close proximity of the roosting area.
Wire markers	Wire markers were installed on catenary wires prior to documented strike incidents occurring and removed in early February 2026 above the roosting trees but retained from Gawler Place to Stephens Place and from east of the roosting trees to Charles Street. This was to identify if there was any difference in Tree Martin flight behaviour. Due to the absence of pre- and post-installation monitoring data, the effectiveness of this measure could not be quantitatively assessed. No evidence was recorded to confirm whether markers reduced collisions or influenced bird flight behaviour by causing avoidance or flushing responses.	Low	Additional monitoring data would be required if wire marker effectiveness is to be trialled during future roosting.

Measure	Description	Effectiveness Rating	Comments
Possum Tails	Installation of possum tails above the roosting trees in Rundle Mall contributed to a reduction in bird strike frequency and mortality. However, effectiveness varied along the treatment area, suggesting that outcomes may be influenced by site-specific factors including roost proximity, bird movement patterns, and treatment coverage.	Medium	Increased effectiveness may be achieved through broader deployment in high strike areas and continued monitoring of those treated areas.
Roost monitoring and on-ground triage	Routine monitoring during key fly-out and roosting periods provided valuable information on roost behaviour, movement patterns, and strike risk locations. On-ground triage enabled rapid response to injured or stunned birds, improving the ability to assess, manage, and record individual incidents on a case-by-case basis.	High	Ongoing monitoring is recommended to capture data to support future management decisions and evaluate the effectiveness of mitigation measures and to provide rapid response to incidents.

7.5 Incidents

7.5.1 Roosting Birds Disturbance

Tree Martins regularly leave the roosting trees quickly (flush) during the evening settling time. Causes of the flush are disturbance by other birds, human activity and truck movements, and the presence of predators, with the majority due to unknown causes.

Flushes frighten the birds and can result in stunned, injured and deceased birds as they collide with buildings/windows and wires, or enter buildings as they quickly try and leave the roosting trees.

During the roosting season there were 11 observed incidents when members of the public caused the birds to flush by kicking, shaking or disturbing the roosting trees. Bunting around the roosting trees was trialled, however use was not continued as it was not deemed effective at being able to stop shaking of branches or throwing objects into the trees. The evening on-ground operational response team monitored for risks to tree disturbance and actively discouraged undesirable behaviours where practicable.

Other triggers that disturbed the roosting flock causing them to flush from the roost:

- Renovations and construction noise from a nearby business fit-out would often cause the flock to become unsettled and occasionally would cause birds to flush.
- Activation of the Gawler Place canopied area, such as contractors installing lighting and decorations for events such as Adelaide Fringe festival causing noise and disturbance to the roosting flock.
- Street performers and loud music, including fire twirlers emitting fumes into the air sometimes causing disturbance to the Tree Martins.
- Rundle Mall is a busy area where activation and foot traffic is encouraged. During times of high activity and late-night events monitoring and triage was sometimes more difficult, as birds were more prone to flushing with increased noise and pedestrian movement.
- Other bird species including Peregrine Falcon, Australian Hobby, Magpie Lark, Owl and perhaps Crimson Rosella appeared to disturb the Tree Martins on various occasions. On other occasions pigeons and Hobby caused the flock to go silent but not to flush.
- On one occasion a member of the public placing bird seed under a roost tree to feed pigeons caused more than 25 pigeons to descend as Tree Martins were arriving, causing a large group to flush.

8. Conclusions and Recommendations

8.1 Key Issues

Outside of bird welfare impacts, the 2025-26 highlighted a range of common issues associated with the Tree Martin roost in Rundle Mall. These are summarised in this section.

8.1.1 Businesses

The presence of Tree Martins roosting in Rundle Mall generated a range of impacts for nearby businesses throughout the season, including increased cleaning requirements, odour and amenity issues, business disruptions, additional expenses, including for mitigation measures, customer complaints and impacts on the trading environment.

8.1.2 Events

During the roosting season multiple events were held in Rundle Mall including major State-supported events and activations that contribute to visitation and economic activity. Events included the larger LIV Golf, Adelaide Fringe, Colours of Asia Street Food Festival and AFL Gather Round mini site activations/events.

Primary concerns with Tree Martin roosting are restricted zones available for activations and revenue generation, health considerations from droppings for food and beverage events, odour, disturbance of roosting birds from trucks / some loud sounds from event set up and pack down and additional operational requirements for event organisers.

8.1.3 Odour and Droppings

Odour from bird droppings was stronger after rain which intensifies the smell by wetting dried and built-up droppings on the trees and paved surfaces.

Dry spells also intensified the odour as the drain did not receive additional natural flushing throughout the day.

The area and benches under and around the roosting trees was pressure cleaned each morning. Drain flushing, deodorising and professionally drain cleaning was used during the roosting season to minimise odour impacts.

The CoA received three pieces of written correspondence about the odour and verbal feedback received from members of the public, businesses and the on-ground operational team. Odour was more likely to be reported by businesses immediately adjacent the roosting trees than other retailers and traders in Rundle Mall. Comments about the odour were also posted by members of the public on social media and featured on radio (ABC and FIVEAA).

The accumulation of droppings within pedestrian areas presented a broader public amenity concern for Rundle Mall visitors. While routine cleaning and additional cleansing measures were implemented, exposure to bird droppings had the potential to create hygiene risks and reduce visitor comfort, particularly in areas directly beneath or adjacent the roosting trees.

8.1.4 Water Quality

The runoff from pressure cleaning the area and benches under and around the roosting trees enters the drain and stormwater system in Rundle Mall and drains to the River Torrens/Karrawirra Pari. Bird droppings are a recognised source of bacteria and viruses in urban runoff, and faecal coliform bacteria counts in urban runoff can be significantly elevated above recreational health standards as a result. The presence and numbers of roosting bird species have been correlated with seasonal changes in water quality, including nitrogen and phosphorous loading. In an urban catchment context, this nutrient and pathogen loading has the potential to contribute to degraded water quality in receiving waterways, though the scale of impact from Tree Martin roosting specifically is likely to be modest relative to other urban stormwater pollutant sources.

8.1.5 Damage to Trees/Vegetation

Plants under active bird roosts often develop discoloured, withered leaves and damaged growth due to nitrogen overload and chemical contamination from droppings. Where large numbers of birds roost in the same trees season after season, the cumulative effect of faecal deposition can progressively stress the host trees, potentially affecting their long-term health and structural integrity.

8.1.6 Rundle Mall Operations

General Rundle Mall Operations experienced disruption at times during the roosting season. Additional mitigation measures were required for contractors undertaking tenancy fit-outs and maintenance works within proximity of the roosting trees. These measures included timing adjustments, modified work practices and increased monitoring to minimise disturbance to the birds.

In some instances, these requirements impacted work schedules, access arrangements and the ability to undertake certain activities as planned during peak roosting season.

The presence of Tree Martins in Rundle Mall generated a range of impacts for Rundle Mall businesses including increased cleaning, odour and amenity issues, business disruption, customer complaints and impact on trading environments.

8.1.7 On-ground Incidents

The on-ground operational response team was positioned in Rundle Mall each evening and encountered anti-social behaviour on seven occasions. These were managed by the on-ground security officer and South Australia Police (SAPOL) was notified on three occasions. One occasion was directly related to the roosting birds.

The cleansing team who pressure cleaned the area around the roosting trees each morning encountered anti-social behaviour on one occasion which was directly related to the roosting birds.

On-ground reports of members of the public shaking, kicking and throwing items into the roosting tree were observed though the roosting season, resulting in numerous flushes and triage incidents.

8.1.8 Highly Pathogenic Avian Influenza

At the commencement of the 2025-26 roosting season there were no known cases of H5 Bird Flu in Australia. Notwithstanding, given the migratory nature of Tree Martins, CoA met with DEW and Primary Industries and Regions SA (PIRSA) in February 2026 to discuss the implications and reporting obligations for the CoA in the event H5 Bird Flu was detected while Tree Martins were roosting in Rundle Mall. PIRSA is the lead agency in South Australia for H5 Bird Flu.

Emergency preparedness activities were undertaken by the City of Adelaide in the event of H5 Bird Flu being detected in South Australia.

Several confirmed cases of H5 Bird Flu were subsequently confirmed in South Australia since the first announcement on 24 June 2026. No cases have been identified in the City of Adelaide.

CoA and the on-ground operational response team maintained a heightened awareness and precautionary approach in line with State Government guidance, including appropriate Personal Protective Equipment protocols when handling deceased birds or cleaning droppings.

8.2 Conclusions

The 2025-26 Tree Martin on-ground operational response and management program successfully established a structured monitoring response, and mitigation framework for managing the Tree Martin roost in Rundle Mall. The program provided valuable baseline information on Tree Martin roosting behaviour, seasonal movements, migration timing, conflict points, and incident patterns within an urban environment.

Tree Martin numbers increased substantially throughout the season, with the roost expanding from the originally observed 30 individuals in December 2025 and peaking at approximately 20,540 individuals recorded in February 2026. The roost remained established within the Chinese Elm trees in Rundle Mall past June 2026, extending beyond the migration period recorded during the previous season.

Implementation of mitigation measures achieved varying levels of success. Window film was effective in reducing bird collisions with high-risk reflective glass. Modifications to overhead infrastructure, including the installation of possum tails, contributed to a reduction in wire strike incidents within treated areas, although effectiveness was influenced by flock size, bird movement patterns, and the extent of infrastructure coverage. Wire markers provided a proactive visibility treatment; however, insufficient pre- and post-installation monitoring prevented a definitive assessment of its effectiveness.

The implementation of daily monitoring and on-ground triage was a significant component of the program and achieved a high level of success. Regular presence during peak arrival and roosting periods enabled rapid response to injured and stunned birds, improved animal welfare outcomes, which was supported by stakeholder communication. The on-going monitoring program provided further information on Tree Martin behaviour and collision risks around Rundle Mall. The information collected has improved understanding of the relationship between roost size, bird movement, infrastructure hazards, and incident frequency, and will support future adaptive management decisions through the CoA TMMP.

Management activities were undertaken in accordance with relevant legislative requirements, including the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), *National Parks and Wildlife Act 1972* (SA), *Animal Welfare Act 1985* (SA), and the Wildlife Management (Controller) Permit issued by DEW. Appropriate approvals, training, stakeholder engagement, and reporting processes were implemented to ensure activities involving protected wildlife were undertaken lawfully and with consideration of animal welfare obligations.

Despite successful implementation of the management program, several significant challenges were encountered. These included managing a large communal roost within a high-conflict retail precinct, preventing birds entering buildings during disturbance events, responding to public interactions with roosting trees, managing odour and amenity concerns, and reducing strike risks associated with reflective glass, catenary wires, and complex building structures.

The presence of Tree Martins roosting in Rundle Mall generated a range of impacts for nearby businesses throughout the season, including increased cleaning requirements, odour and amenity issues, business disruptions, additional expenses, customer complaints and impacts on the trading environment.

The presence of the roost created limitations for multiple events that were held in Rundle Mall during the roosting season that contribute to visitation and economic activity.

These include odour and public health and amenity considerations associated with bird droppings and odour and restricting zones available for activation, due to the need to minimise disruption to the roost site and additional operational requirements for event organisers.

The season demonstrated that management of Tree Martins within an urban environment requires a combination of early intervention, infrastructure modification, stakeholder cooperation, ongoing monitoring, and adaptive decision-making. While mitigation measures reduced some risks, preventing impacts in a high-conflict location such as Rundle Mall remains challenging once a large communal roost has become established.

8.3 Recommendations for Future Seasons

Based on the findings of this season, the following recommendations are made for future management programs:

1. Continue to monitor Tree Martins daily while they occupy the roost. If they leave the roost, ensure monitoring commences prior to the expected arrival of the Tree Martins to identify potential roost establishment areas, assess emerging risks, and implement mitigation measures before large communal roosts become established.
2. Continue early engagement with DEW regarding permit requirements, and approval pathways for management options and ensure permits fit those requirements.
3. If the Tree Martins continue to roost within Rundle Mall, mitigation measures should be encouraged. This includes window decals/films on high strike windows near the roosting trees, and the installation of netting in high ceiling areas. Priority should be given to high-risk areas, and locations where birds regularly flush from the roost.
4. Further assessment of possum tails should be undertaken, with consideration given to extending coverage beyond the initial installation areas, pending engineering assessment. Future installations should target all identified strike pathways, including anchor wires and infrastructure adjacent to the primary roosting trees.
5. Per the 2025-26 on-ground operational response, if Tree Martins roost near private buildings, building-specific solutions should be investigated and discussed with business owners to encourage businesses to reduce internal access points, improve escape pathways, and minimise bird mortality during flush events.
6. Continue stakeholder engagement prior to and throughout the roosting season. Encourage businesses within high-risk areas to implement agreed measures, including managing door access during peak arrival periods, applying window treatments, and maintaining clear response procedures for birds that enter buildings.
7. Continue on-ground roost monitoring to establish long-term population, movement, and triage trends. Continued data collection will improve understanding of migration timing, population fluctuations, roost persistence, and the effectiveness of mitigation measures implemented during each season. Extend information capture to include the outcome for birds entering veterinary care.
8. Implement management actions in accordance with PIRSA protocols and directions associated with H5 Bird Flu. Consult Wildlife Health Australia and/or the Australian Government Department of Agriculture, Fisheries and Forestry to obtain updated information and advisories, if necessary.
9. Prepare an integrated information and education program for residents and commercial operators. Look to improve understanding of the Tree Martin population, its ecological importance and understanding of how the community can coexist with nature.

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Appendices

Appendix A – Species Identification Criteria

Appendix B – Photographic Record

Appendix C – Communications

Appendix D – Survey Data Sheets

Appendix E – Mitigation Measures

Appendix A: Species Identification Criteria

Table 10. Tree Martin species profile

Category	Description
Name	*Petrochelidon nigricans*
Size	Length: 12 cm, wingspan: 28 cm, weight: 15 g
Identification	Small bird with glossy blue-black feathers on the neck, back and crown, and cream feathers on the breast and belly. Wings and notched tail are brownish-grey, with a darker grey underneath and reddish-brown markings on the head. Males and females look very similar. Young are browner and paler. (Image: www.ebird.org [Ged Tranter]) 
Distribution	Widespread throughout Australia, between January and May, before heading north to Papua New Guinea and Indonesia from May to July (Green Adelaide 2025). Some individuals do not migrate.
Preferred habitat	Generally, occur in airspace above open spaces such as grassland through to forests and wetlands, and cities and suburban areas. Observed roosting nocturnally in Adelaide in Callery pear (*Pyrus calleryana*) and Chinese elm (*Ulmus parvifolia*) trees, particularly those with fairy lights, where noise, light, and people are thought to assist in keeping predators away (Green Adelaide 2025).
Behaviour	Individuals and populations can be migratory. They will fly in an erratic but skilled way in pursuit of flying insects. May fly in large flocks as they approach their roosting site near sunset, that rise en-masse and then dive down together into the vegetation, avoiding predators such as peregrine falcons (Birds in Backyards 2025).
Breeding	Tree Martins have been recorded nesting in all months, but most commonly in spring and summer from August to December (DEH 2008). Nest in horizontal hollows of gum trees, and vertical banks of eroded creek lines. Can use artificial structures for nesting, such as steel tubing and vent holes in buildings (Green Adelaide 2025). Nest hollow lined with grass and leaves (Department of Environment and Heritage 2008). Clutch 2-5 eggs with brown and mauve spots. Incubation for 14-16 days. Both parents incubate the eggs and feed the young.
Conservation status	Listed as a migratory species under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; migratory species are listed as a 'matter of national environmental significance'. Protected under the *National Parks and Wildlife Act 1972* (NPW Act).

Appendix B: Photographic Record

Figure 3. Bird exclusion netting Leigh Street trees.

Figure 4. Roosting Tree Martins in Chinese Elm – Rundle Mall.

Appendix C: Communications

Figure 5. Postcards for businesses to prepare for the roosting season.

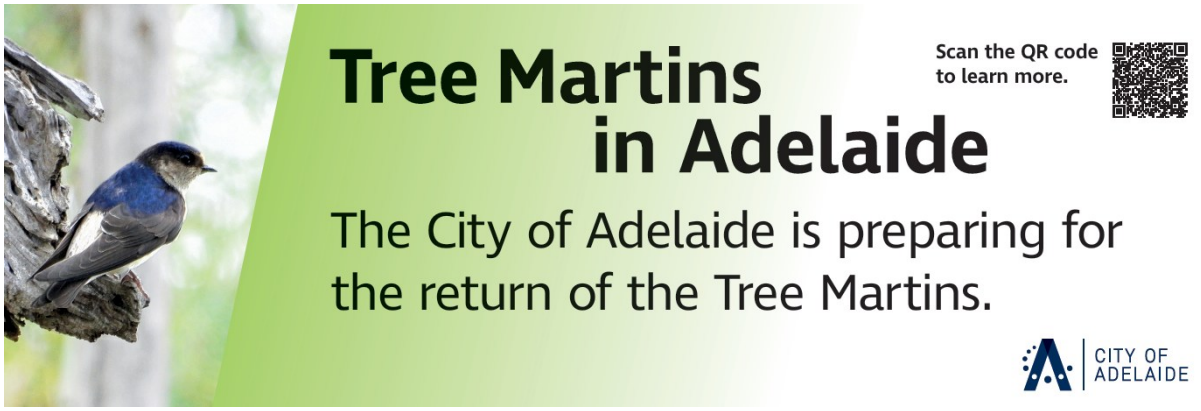

Figure 6. Bench decals in the lead up to the start of the roosting season.

Figure 7. Bird of prey visual deterrent.

Figure 8. Bench decals to raise awareness of Tree Martin presence.

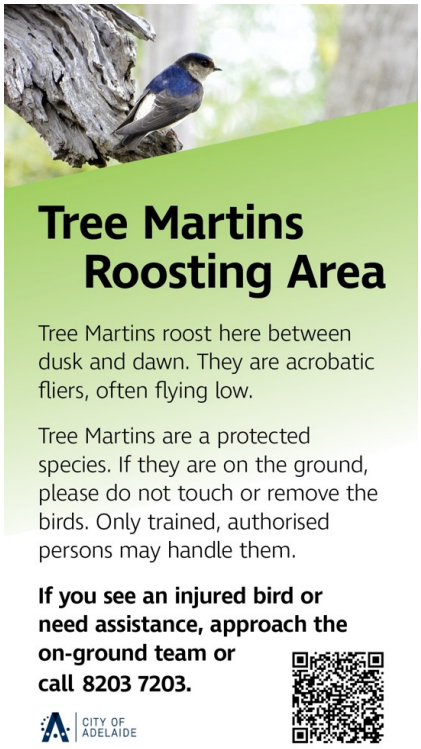

Figure 9. Digital screens in Rundle Mall.

Figure 10. Signage in roosting area.

Food Health & Safety Notice

Please be aware that large numbers of Tree Martins roost in the trees above this seating area between dusk and dawn. While the space is cleaned regularly, bird droppings may occasionally fall.

We recommend covering food and drinks, or choosing an alternative seating area if preferred.

Figure 11. Signage on roosting trees with podium seating.

Tree Martins in Rundle Mall – What you need to know

As the days get shorter, Tree Martins will begin arriving earlier in Rundle Mall each evening. Potentially from as early as 4:00pm, while businesses are still open. This increases the chance of birds entering stores or colliding with windows.

Here's how you can help to deter birds from flying indoors or into windows. Where possible:

- Close or lower doors before birds arrive*
- Install temporary rope curtain or similar
- Trial owl-shaped cardboard cut-outs*
- Apply anti-collision bird window decals or stickers
- Install temporary window screens
- Dim lights at dusk to reduce reflections
- Switch off lights when your store is closed

***Contact the City of Adelaide for materials. Call 0403 253 403**

CITY OF ADELAIDE

If a bird enters your store

Stay calm, reduce lighting, and gently guide it towards the exit.

Please do not chase or handle the bird.

If you find an injured bird

Notify the on-ground team or contact the City of Adelaide. Trained, permitted personnel will assist.

Please do not touch the birds or take them home.

Need support or materials?

Speak to the evening on-ground team (identifiable by their Avisure uniform or City of Adelaide high-vis vest), or call 0403 253 403

We're trialling a range of initiatives this season. If something works well in your store, please let us know! Your feedback will help shape future approaches.

Thank you for helping to protect the Tree Martins!

Figure 12. Postcards for businesses to prepare for end of daylight saving.

Figure 13. Window decal.

Appendix D: Survey Data Sheets

Triage Monitoring Data Sheet – Tree Martin

Date:_____

#	Time:	No. and Life stage:	Situation:	Capture Technique:	Condition:	Action Taken:	Time in Care:	Triage Comments:	Photo #	Complete
		- Adult - Adolescent - Juvenile - Unknown	- Struck building/window - Struck sign - Struck wire - Trapped in building - Struck eave - Struck wall - Other	- Handheld net - Mist net - Passive trap - Picked up - Other	- Deceased - Injured - Stressed - Stunned - Other	- Disposed of - Taken to vet - Monitored in car - Monitored in container - Released - Other				
1										☐
2										☐
3										☐
4										☐
5										☐
6										☐
7										☐
8										☐
9										☐

#	Time:	No. and Life stage:	Situation:	Capture Technique:	Condition:	Action Taken:	Time in Care:	Triage Comments:	Photo #	Complete
10										☐
11										☐
12										☐
13										☐
14										☐
15										☐
16										☐
17										☐
18										☐
19										☐
20										☐
21										☐
22										☐
23										☐

Triage Monitoring Actions Breakdown:

Situation: • Stuck building/window • Struck sign • Struck wire • Trapped in building • Struck eve • Struck wall • Other	**Capture Technique:** • Handheld net • Mist net • Passive trap • Picked up • Other
Condition: • Dead • Injured • Stressed • Stunned • Other	**Action Taken:** • Disposed of • Taken to vet • Monitored in car • Monitored in container • Released • Other
Life stage: • Adult • Adolescent • Juvenile • Unknown	

Appendix E: Mitigation Measures

Figure 20: Wire markers on Rundle Mall catenary wires

Figure 21. Possum tail covering on Rundle Mall catenary wire